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HANS HERMANN JULIUS HAGER, M.D., Ph.D.

January 3, 1816—January 24, 1897.

Honorary member American Pharmaceutical Association.
Author of "Handbuch der Pharmazeutischen Praxis," etc.
Founder and Editor of "Pharmazeutische Centralhalle."

N. A. Stager

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V JANUARY, 1916 NO. 1

THE CENTENARY OF HERMANN HAGER.

THE high rank as pharmacist of Dr. Hans Hermann Julius Hager suggests a tribute to his memory in the pages of this issue, for the third day of January marked the one hundredth anniversary of this distinguished German pharmacist's birth.

Dr. Hans Hermann Julius Hager, the son of an army physician and surgeon, Dr. Johann Heinrich Hager, was born in Berlin, Germany. He entered pharmacy, April 1, 1832, as an apprentice in the Loewen-Apotheke at Salzwedel, where he very early evidenced his love for the profession of pharmacy and striking adaptation for the life-work he had chosen. Without attending the university, he passed the State Board of Examiners in Pharmacy at Berlin and was credited with the mark, " very good."

In 1843, Dr. Hager purchased the Stadtapotheke in Fraustadt, of which he was the owner until 1860, when he moved to Berlin. During the seventeen intervening years as " Apotheker " in Fraustadt, Hager devotedly applied himself to his profession and contributed largely to pharmaceutical literature. Before removing to Berlin, he established the *Pharmazeutische Centralhalle,* and retained editorial management until 1879. After the conclusion of the first year's issuance of the pharmaceutical weekly, Dr. Hager introduced the annual messenger, *Der Pharmazeutische Kalender,* to the German profession. His immediate connection with these two valuable publications terminated about the time when he completed the first edition of *Handbuch der Pharmazeutischen Praxis,* the recent revision of which has appeared in three stately volumes.

The preparatory work for the first edition of his masterpiece was done in his country home, *Pulvermuehle,* in the pine forests near Fuerstenberg, where he lived until 1881, when he moved to Frankfurt, and the last year of his simple but successful life was spent in Neu-Ruppin.

The University of Jena conferred upon him the degree of Ph.D., and he was also the recipient of the honorary degree of M.D. from the medical faculty of the same institution. Many pharmaceutical and related associations and other organizations expressed their recognition of his valued services by memorials and honorary membership; several in this country among them, and, quite naturally, the American Pharmaceutical Association.

He was an honor to pharmacy and an inspiration to pharmacists; in his masterwork pharmacists have a guiding light and an illuminating book of reference.

E. G. E.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

WILL PHARMACY PROFIT BY THE LESSONS OF 1915?

IN the year that has passed every branch of the drug trade in this country has been subjected to unparalleled stress and strain. Never before in the history of American pharmacy has there been a more critical period, and never before has the dependency of this country upon foreign countries for drug supplies been more strikingly exhibited.

Unprecedented fluctuations in prices have occurred not only in European drugs, but also in those of every other country, including our own. Some drugs are now unobtainable and more will be, as time progresses, regardless of the existence of war or peace.

These experiences should impress us that there is a real need of extended coöperation, not only within the very complex drug trade, but reaching out practically to every allied industry. They should stimulate us as pharmacists to utilize to the uttermost the possibilities that are within our grasp. Especially is this true of the members of the American Pharmaceutical Association, who are the leaders of American pharmacy. What we should do to-day is to coördinate all the various drug activities in coöperative endeavor.

We are in a position to discover, if this has not been done, what we need to make us less dependent upon the sources of drug and chemical supply from which we are now cut off. The demand for foreign materia medica products will be materially reduced, and, if our attention is specifically directed, we may find in this country additional valuable drug-plants. Certainly some of the important medicinal plants can be successfully cultivated here, as has been demonstrated by the United States Government and by private enterprise.

The manufacturers of chemicals have the opportunity of a generation; and in this connection there is an imperative need for a radical revision of our patent and trade-mark laws, with special reference to the subject of product-patents.

And with all of this, American research must be strongly encouraged; the neglect of this is, at least, one of the chief causes of the inconveniences we are now experiencing. We cannot hope, nor would it be desirable, to become entirely independent of other countries for our supplies, for we must continue to buy from them, so that we shall have the opportunity of trading with them.

But in shaping profitable trade relations with foreign countries we should have scientific tariff regulations and anti-dumping legislation not adapted for political purposes; framed for the fair, reasonable, and rational protection and development of our industries; for diversifying and accentuating the talents and genius of the whole people.

That which applies to schools where training in chemistry is the only purpose obtains to an equal degree with schools of pharmacy. Research work must be extended to render a greater and more efficient service for pharmacy. The manufacturing industries, as well as retail pharmacists, must keep in close touch with the schools, for, after all, the training and education offered in the schools are preparatory to pharmaceutical activities. The work should be done not only for the purpose of obtaining knowledge, but also for its practical applications.

Drug gardens should be developed not only for the education of the student in plant life, etc., but also to devise practical methods for the successful commercial cultivation of plants. The same thought may be applied also to the student-work of all our laboratories.

Finally, this thought—pharmacy and its related activities should work together in developing materia medica along rational lines for efficient service rather than for exploitation to derive personal profit. Let us appropriate the lessons of our recent experiences for the betterment of our business and profession. Let us take full advantage of the wonderful opportunities that are knocking at our doors. Let us encourage research work to the uttermost. And let us, as members of the American Pharmaceutical Association, do everything in our power to promote the growth and development of our own drug industries, both by organization and work on the part of our membership and by coöperation with allied interests, to the end that the constructive development of American pharmacy may be worthy of the age we live in, and the opportunities that are now before us.

E. G. E.

QUESTIONS AWAITING YOUR ANSWERS.

HAVE you given thought to the fact that *your* State Association will meet *this* year? Are you preparing to promote the work your Association was organized for? Will you help strengthen its membership, support those elected by you to guide the destinies for this year? Do you know the American Pharmaceutical Association will meet in August, in Atlantic City, and that you can, *if you will*, add others to the membership and thereby make better service possible?

The American Pharmaceutical Association will convene in August, and it is not too early to give the next annual meeting serious thought now, for the intervening months will pass by just as quickly as those that have already gone. The chairmen of the various sections should outline their programs and enlist the interest of contributors of papers. Those papers that the chairmen desire to have printed in advance should reach General Secretary William B. Day sixty days prior to the meeting. Every paper should be accompanied by a concise abstract, and no one is better qualified for such work than the author.

Every member should study the needs of the Association and its opportunities, so that our hopes may advance toward realization and enable us to move the goal of our expectations forward. While the reward of association work is accom-

plishment, its continuance is stimulated by the knowledge that there are further opportunities.

The Association has for many years been giving more to the members than the receipts have warranted; the best solution of this financial problem, and one that is easily possible, is a larger membership. If every member would recognize the persuasion of others to affiliate with the Association as one of his duties, then the financial difficulties of the Association would readily be overcome and the members will share in better service. Increased membership also provides an augmented income for the Journal whereby the running expenses of the official publication are met. The desire of the Publication Committee is to have the Journal self-supporting, and the encouragement of the members along the lines indicated, and in making the advertising patrons satisfied with their investment, will be helpful.

Every member enjoys the same rights and privileges offered by the Association; the officers are simply servants whose duty is outlined by the Association, but whose opportunities for service are more or less promoted or impeded by fervid or frigid enthusiasm of the members.

The first of the year is always a good time for retrospection, looking forward and inward. Sufficient time has elapsed for recalling unnecessary resolutions, and now is the golden opportunity for replacing some of them by determinations that will benefit not only the Association but every member of it.

Let us have just one year wherein every one will do his level best to make the American Pharmaceutical Association stronger and more efficient. If so, we will never have cause for regret, and at the same time set a good precedent for succeeding years.

E. G. E.

VACCINATION AND ANTIVACCINATION.

WE present this editorial because the average laymen may be confused by the striking discrepancies between the claims for the protective influence of vaccination against smallpox made by the proponents of this procedure and the counter-claims made by its opponents; also because the subject was discussed at a recent meeting of the Philadelphia Branch, American Pharmaceutical Association.

The advocates of vaccination are made up of laboratory scientists, sanitarians, and about 98 percent of the medical profession. The opponents of vaccination in this country consist chiefly of laymen and laywomen and a handful of physicians, few of whom, if any, occupy positions as health officers or teachers in the universities or important medical schools. If one is to be guided by the opinion of experts and those who have had an opportunity of judging of the preventive influence of vaccination against smallpox, the choice is an easy one for those persons whose minds are open.

But there are those who may say that we want the evidence and not merely

opinions from authoritative sources. The statistical evidence of the efficiency of vaccination is so overwhelming and so convincing that it is difficult to understand how any person with a mind receptive to evidential testimony can fail to be satisfied.

The history of smallpox in Germany from the time of the passage of the compulsory vaccination and revaccination law in 1874 to the present day stands as a Gibraltar of convincing evidence. Germany has stamped out smallpox as an epidemic disease—Russia still loses about 40,000 persons a year from this fell malady. One might write an entire book on the statistical side of the cases, but a careful study of the German figures suffices.

But the efficiency of vaccination is attested likewise by the almost universal testimony of physicians having experience with smallpox. It is, furthermore, indubitably proved by laboratory experiments which have the scientific weight almost of a chemical reaction. A monkey that is successfully vaccinated cannot thereafter be successfully inoculated with smallpox, although an unvaccinated ape takes the disease. Here is an experiment which can be carried out by any properly-qualified person and which yields results which prove conclusively the protective influence of vaccination. These results are completely corroborative of the work carried out by Jenner over a hundred years ago. He vaccinated a number of persons and found that such individuals could not thereafter take smallpox by inoculation. Furthermore, they remained immune against the disease contracted in the usual way throughout the period of Jenner's life. Later it was found that the protective effects of vaccination wore out in most persons after a period of years and required renewal. To minimize the importance of Jenner's discovery and charge him with a gross blunder because protection after a single vaccination did not last for life is unfair and foolish hypercriticism.

The argument that vaccination is a great evil and causes numerous deaths and innumerable diseases is a distortion and exaggeration of facts. Accidents and fatalities have occurred, but their number proportionate to the number of vaccinations carried out is infinitesimally small, and, however regrettable, they cannot weigh for a moment against the enormous number of lives saved by vaccination. Statistics show that from 1901 to 1904 inclusive 890 persons lost their lives in Philadelphia as a result of smallpox. If no one in this community had been vaccinated the deaths could readily have reached 8900 or more. The opponents of vaccination are sincere, zealous, and self-sacrificing and devote time and labor to their cause. No one can impugn their motives, but their activities tend to clog the wheels of progress, because they are false prophets. E. G. E.

THE HOUSE OF DELEGATES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACT OF THE MINUTES OF THE MEETINGS HELD IN SAN FRANCISCO, CAL., DURING THE WEEK OF AUGUST 9, 1915.

THE HOUSE OF DELEGATES.

Owing to the fact that the meetings of the House of Delegates were conducted in a rather informal manner, largely due to the absence of the regular officers and to the change in the time of the meetings, no attempt will be made to report the doings of this body in detail, but a general account of its proceedings will be given.

Unfortunately, in the arrangement of the general program, the fact that the meetings were to be held in an exhibition city, with many and varied attractions going on in the evening, seems to have been overlooked. The first session was slated for Monday evening at 7:30, when many of the delegates had just about started to eat dinner, and it was time for the Nominating Committee to meet, at 8:30, before a quorum could be gotten together, consequently there were comparatively few in attendance.

In the absence of President Richardson, ex-President Snow was requested to preside and Dr. Joseph Weinstein was elected secretary *pro tempore*. At the second session, Tuesday evening, very few delegates were present, and, when the meeting was about to convene, the hotel authorities stated that they must have the use of the room. A meeting was hurriedly called to order and Dr. J. H. Beal requested to take the chair, when a motion to adjourn until nine o'clock Friday morning was unanimously carried.

A fairly complete list of the organizations sending delegates to the American Pharmaceutical Association, which delegates were to form the House of Delegates, appears in the September number of the Journal, page 1037. The list of delegates in attendance at the convention were as follows:

Woman's Pharmaceutical Association of the Pacific Coast: Dr. Winslow, Miss Farrell, Mrs. Low.

N. Y. Deutscher Apotheker Verein: R. S. Lehman, H. V. Arny.

State Associations: F. W. Nitardy, Colorado; J. G. Godding, Massachusetts; F. J. Wulling, Minnesota; R. A. Lyman, Nebraska; Joseph Weinstein, W. C. Anderson, New York; Azor Thurston, Ohio; W. J. Teeters, Iowa; E. G. Eberle, Texas; H. P. Hynson, Maryland; C. M. McKillips, Oregon; C. Osseward, Washington; Philip Asher, Louisiana.

Schools of Pharmacy: J. H. Long, Northwestern University; Miss Zada Cooper, University of Iowa; W. C. Johnson, A. W. Linton, University of Washington; O. F. Claus, St. Louis College of Pharmacy; C. M. Snow, W. B. Day, University of Illinois; J. P. Remington, Philadelphia College of Pharmacy.

San Francisco Branch, A. Ph. A.: Mrs. White, J. L. Lengfeld.

Those taking active part in the deliberations were, principally, Messrs. Snow, Anderson, Weinstein, French, Beal, Hynson, Freericks, Dohme, Asher, Nitardy, Osseward, and Lyman.

There were but three definite conclusions arrived at by the House of Delegates this year.

1. The passing of a resolution, at the suggestion of the Denver Branch, which provided for the appointment of a committee to investigate the proper manner of pricing prescriptions and to suggest a system by which pharmacists may be guaranteed a living profit on this class of work.

2. The adoption of a resolution, at the suggestion of the Nashville Branch, endorsing the efforts of the American Medical Association in trying to have prescription writing fully taught in medical colleges.

3. The authorization of the appointment of a committee of five by the President of the House of Delegates to further consider the welfare of the body and suggest a definite plan by which its usefulness may be increased and its functions fully established.

Most of the discussions were upon the better organization of the body, upon the delegation to it of more power, and upon the advantages of giving it unrestrictive control of all business referred to it by the Association or the bodies sending delegates.

Chairman Hynson, of the special committee appointed last year to investigate the House of Delegates and to see if its usefulness could not be improved, stated that he had made diligent effort to get the sense of the members of his committee and to have them unite upon a report with suggestions. While admitting that he, himself, might be somewhat to blame, he had to confess that he did not feel that he could conscientiously endorse any report that would be of any possible interest or at all helpful that would be agreed to by the other members. He begged to be allowed to submit two forms of report, which he had offered his committee, simply as illustrating his views and for the purpose of bringing about further discussion upon the subjects in question during the coming year. He thought it would be wise to publish, in connection with these reports, the very carefully made comments of the other members of the committee, hoping that all this matter would prove interesting enough to warrant its publication. He also thought it would lend some assistance to those who would take up the work of defining the functions of the House of Delegates and of fixing its authority and scope of operations. These reports and the comments referred are as follows:[1]

REPORT OF SPECIAL COMMITTEE "TO INVESTIGATE THE HOUSE OF DELEGATES AND SEE IF ITS USEFULNESS COULD NOT BE IMPROVED." (FIRST FORM OFFERED.)

To the Members and Officers of the House of Delegates.

GENTLEMEN:

As some of you know, your Chairman has done his "little best" to render you helpful service, but at last feels that he must present for your consideration both a majority report and a minority report.

Mr. Apple, it is regretted, on account of ill health, has not been able to take part in the committee's work.

If the Chairman properly understands the kind of communications of Messrs. Freericks, Anderson, and Lemberger, the majority, he advises you that they consider the House of Delegates of no great importance to the Association, and the making of it a useful body a very difficult proposition. They are undoubtedly

[1] "The House of Delegates of the A. Ph. A. (*In re* its betterment)" and "Additional Information Regarding the House of Delegates, A. Ph. A." They are printed in full in the April issue, pp. 524–527, and in the July number, pp. 844–849. The report of George M. Beringer, chairman of the Council Committee, *re* the House of Delegates, will be found in printed proceedings of the Council, pp. 1252–1254.

agreed that the present comprehensive and inclusive character of membership need not be changed or are in favor of its continuation. Each offers suggestions, in detail, for the conduct of the House.

The majority report may be, therefore, summarized as follows: We recommend that the present form of by-laws for the House of Delegates be continued, and that its functions be defined and its conduct be controlled in accord with the suggestions submitted in our several communications, herewith submitted.

The minority respectfully requests the Association to act as follows;

1. To receive delegates from all foreign pharmaceutical societies, government departments, national medical societies at its first general session.

2. To receive all delegates from national drug and pharmaceutical organizations at some other general or special session until these bodies may become a part of the Association.

3. To discontinue to invite delegates from local Branches, since these have representation in the Council.

4. To discontinue to invite delegates from colleges of pharmacy and alumni associations of colleges of pharmacy, since these are represented in the Conference of Faculties, either directly or indirectly.

5. To assist in organizing the House of Delegates into a body made up exclusively of delegates from the several state associations and from similar associations of the District of Columbia, the territorial and insular possessions of the United States, provided that delegates are members of the A. Ph. A., in good standing, it being understood that all matters of strictly interstate concern shall be referred to such a House of Delegates for final action.

In support of such minority report, the communications from the Chairman to his colleagues and others and their replies to him are herewith submitted as a part of this report.

Respectfully submitted,

HENRY P. HYNSON.

F. H. Freericks.

GENTLEMEN:

First of all, I must ask Chairman Hynson's pardon for not sooner answering and discussing his clear statement of several months ago. Truly, my apparent inattention must be ascribed to a great mass of work of immediate concern, and to the very great difficulties of the problem which we are charged to solve.

It is our duty to investigate the present status of the House of Delegates, and to suggest if possible, plans for making it a real useful body. Our Chairman, having no doubt devoted a vast deal of thought to the subject, suggests a plan of reorganization, under which the House of Delegates would be constituted exclusively of representatives from the several state associations, and he then outlines a plan of activities for the body so constituted, involving a consideration of matters which are or should be of special interest to the associations of the different states, enabling them to become acquainted with progress separately made, and to discuss progressive measures which may have found separate approval, with a view of arriving at combined decision, as a ready method for carrying advantageous and desirable results secured in one state into other states. In an attempt to discuss the Chairman's proposal, and the subject matter itself, I would advance the following thoughts:

First.—It may be admitted without question that the House of Delegates has to this time performed little service. Whether this is entirely due or in part due to its plan of organization may at this point remain unanswered. It is certain, however, that no body, regardless of its plan of organization, can accomplish anything unless it has certain prescribed duties to perform and final authority per-

taining thereto; that is, provided its functions are not purely educational, affording opportunity only to convey information and to permit discussion. It occurs to me that with duties to perform and powers to exercise the House of Delegates as at present constituted can be made efficient, if a House of Delegates as proposed by Dr. Hynson can be made worth while. In short, if the House of Delegates, as made up of representatives from state associations *exclusively,* is to have no specific duties to perform and no specific authority to exercise, then it will be quite as unsuccessful as is the present House of Delegates; whereas, if duty and authority are assigned, success under the present plan may be equal to the success to be secured under a plan of reorganization.

Second.—It seems to me that the Chairman would secure a general interest and worth-while results by impressing those who would constitute the House of Delegates with the exclusiveness and importance of their position. He would charge them with apparently grave responsibilities as measured by like restricted representation from only the recognized most important body of each separate state. He would compel an actual live interest by impressing each individual delegate with his exclusive rights and prerogatives, only to have them find, when assembled together, that they are on a level with a debating society, for they will have no right to decide upon anything, or rather their action on any question would not be the approved action of the Association, unless it subsequently have the endorsement of the Council or the Association itself. To me it seems utterly impossible to impress a body of men with the importance of their functions so as to create a real live interest, unless they can know that it has the responsibility, and that its action is final. To me it seems altogether indefensible to first bring a body of men together, because of the importance of their mission as evidenced by the restricted membership, and then to have them find that their every action is subject to revision and approval of another body, which is not nearly so representative.

Third.—Every question which can possibly be presented for discussion and enlightenment to a House of Delegates now has free and full opportunity for such discussion before the several Sections, and the light of progress can shine effectively out of said Sections. Therefore, a House of Delegates without fixed duties and without final power in a measure nearly duplicates the present Sections, differing principally in the fact that all of the various subjects which are now assigned to different Sections would be for discussion before one body. If only such result is to be accomplished, then it may be well accomplished by giving up the several Sections, and by simply having general sessions of the Association, at which the attendance has never been so great as to be unwieldy.

Fourth.—It must be admitted that the Chairman's proposal aims to go beyond what has just been stated. He would have the delegates from one state carry information on a given matter to the delegates of the other states, so that they might take such light home with them and spread it at home. It is undoubtedly true that the chances for accomplishing this are far greater when it presumably becomes the duty for specially appointed persons to do this, as against it being left to volunteers; but if it is merely a question of spreading the light, why not have it spread in as many places as possible, including not only state associations, but local associations as well?

Fifth.—If we would really make the House of Delegates an important body, which by its very importance and restrictions commands attention and interest, then we should make it the body of final jurisdiction,—in other words, the mouthpiece of the Association, being final with reference to all its activities. To do this would require an entire reorganization, and would practically make the American Pharmaceutical Association exactly like the American Medical Association.

First of all, it is doubtful whether pharmacy is better served by excluding the general membership from taking part in and helping to decide upon questions of vital concern. It certainly would have some tendency of making our annual meetings less attractive for those who do not come in a representative capacity. The pharmacists of the country, unlike the medical men, are more generally confronted

with problems affecting their general status, which go beyond matters of educational and scientific advancement. To exclude the general membership from a direct voice in such problems will alienate their immediate interest in the Association and will keep them from its meetings. To have men selected as delegates by state associations whose membership is largely not affiliated with the American Pharmaceutical Association would thus put it in the power of those who have no direct concern to select men for governing the destinies of the Association. The duty of making such selections would thus be light-heartedly assumed, and the limited number to select from might result in having a House of Delegates largely made up of men who would not, for one reason or another, be selected to govern their own and far less important state association. Without provision to defray the expenses of such delegates, the selection would be sure to be made from among those who, first of all, have the means for making, frequently, extended trips, and, unfortunate as it may be, the fact is certain that such House of Delegates so constituted would be largely made up of members who are not engaged in retail pharmacy, and, far and above all, it is the retail pharmacist who should be attracted by the American Pharmaceutical Association, and it is the retail pharmacist who should have the most important voice in its activities. Therefore, I must conclude that a House of Delegates similar to that of the American Medical Association is at present out of the question, and on that account an entire reorganization of the American Pharmaceutical Association along that line is not now feasible; nevertheless, it would seem timely and proper to consider such entire reorganization, and to sound the various state associations on a plan which in some manner would make every state association member also a member of the American Pharmaceutical Association. In that connection, however, we must not leave out of mind the possibility of conflict with the National Association of Retail Druggists, which to-day largely has a relationship, rather indefinite with members of state associations.

Sixth.—Much as I would like to agree with the proposed change advocated by Chairman Hynson, I cannot under present conditions see any advantage to be derived therefrom, and this brings me back to consider what might be done, if anything, with the House of Delegates as at present constituted.

In order to meet the justified criticism of Chairman Hynson regarding the total lack of distinguishing between the more important state associations, I submit that a change might be made under which state associations would be entitled to three delegates, while local associations and Branches would be entitled to only one delegate each. In this connection I have in mind the aim and thought which at least in part was responsible for instituting the House of Delegates, which, if I understand correctly, was that an opportunity should be given to largely make those who attend the Association meetings feel that they have a place in its general arrangements.

Now then as to the functions for such a House of Delegates, to possibly make its sessions worth while and have them serve the purpose of spreading the light: Three months in advance of the annual convention, or possibly four months in advance, a request should be sent to each state and local association, and to each Branch, advising them of the desire that they be represented by delegates at the American Pharmaceutical Association Convention, and particular stress should be laid upon the desire that such delegates present resolutions deemed of importance by their associations, as concerning the progress and welfare of pharmacy in any direction. Request for such resolutions should be framed in an attractive manner, so as to be really an inducement for devoting the necessary time and thought in presenting important questions for nation-wide consideration. The by-laws governing the various Sections of the Association as now constituted should be changed so as to require that the various Sections have and complete their sessions by Thursday noon, the House of Delegates to commence its real work Thursday afternoon.

Each Section should be required to separate the most important proposals which have been presented at its various sessions, with such action as they may have taken relative thereto, and present them for consideration and discussion before the House of Delegates. Thus the House of Delegates, the membership of which would throughout the sessions be no doubt more particularly interested in one or two of the Sections, would have brought before them all the important matters and proposals which during the convention have found consideration in one place or another. They would be able to discuss and arrive at intelligent conclusions for themselves, and, on their return, to communicate them to the entire membership of their respective associations. While discussion at such meetings of the House of Delegates would be limited to its members, all of its sessions would be open to every one in attendance, and thus every one inclusive of the delegates might have a *résumé* of every important thing which has been brought up or which has transpired.

Most respectfully I submit these thoughts for consideration by our Chairman and the other members of the committee. I am not at all confident that the suggestions made will prove to be of good results if tried out, but I have just a little hope that it might be worth the trial.

W. C. Anderson.

GENTLEMEN:

I have given some thought to what I believe should be our principal object, namely, defining the functions of the House of Delegates, but must confess I have not been able, at an earlier date, to decide upon any constructive suggestions along these lines.

Membership is important, but membership without objects or duties can be of little avail.

The work of our committee would be made easy if we were dealing with a proposition that involved the formation of a new and separate organization, but to provide functions for an organization, within an organization already provided with sections that cover practically every phase of pharmacy, is a very different task.

As Chairman of our committee you have made a strong effort to provide for the House of Delegates a program that will be interesting and profitable, and still, with the exception of the provision for a Committee on Resolutions, an adopted policy of the House, every item on the proposed program properly belongs to existing sections of the American Pharmaceutical Association.

Every one of us has felt the loss to which we have been subjected because of one's inability to attend the sessions of all sections during our annual meetings, and we should carefully avoid having the House of Delegates increase this loss.

It has occurred to me, while attempts have been made to whip into proper form various resolutions presented to sections and at general sessions, that time might be saved by having a specific body handle such matters and bring them, in the best possible form, for final adoption.

I believe the House of Delegates, with a properly defined membership, could serve a splendid purpose along these lines.

Other duties will develop as its usefulness is demonstrated.

Joseph L. Lemberger.

GENTLEMEN:

I have been canvassing in my mind just what is the best thing to say the House of Delegates should really represent, as well as its province, and I have not changed my mind since the first impression at Detroit.

The House of Delegates should be an absolute body of delegates from the pharmaceutical associations of the continent and other associations affiliated with

the pharmaceutical profession, such as the various branches of the American Pharmaceutical Association, and every delegate must be a member of the American Pharmaceutical Association or an applicant for membership at the annual meeting. The House of Delegates should have the first session for the purpose of receiving credentials and greetings that the delegates will bring from the body they represent, or any communications in the way of business or resolutions from such bodies. These should constitute the nucleus of the first overture or business that the House of Delegates will present to the first general session of the Association, and this business should be the first order after the President of the Association has made his address and the usual appointment of committees by the presiding officer of the Association.

The House of Delegates should convene daily at such time as not to interfere with the sessions of the Council or general sessions of the Association, and should be prepared with any matter of reference to the Council or the Association and the various Sections. In order to carry out this outlined plan, the associations should appropriate a sufficient sum to pay a stenographer and other help, if necessary, to expedite the business of the House of Delegates.

I have read the valuable report that you prepared and realize the great care you must have taken with it, as well as the sacrifice of time corresponding with so many persons connected with the Association. This last feature may have been a good thing, and yet, as I read them, the opinions are very varied. Your report, I believe, will receive careful attention, and I have extreme regret that I cannot be with you at San Francisco to support anything you may do that I can approve of, and I can generally approve of the very best you do.

In conclusion, the position I take may startle you and some other people, but a House of Delegates should be the representative body that an Association like our great body can use.

(Second Form.)

To the Members and Officers of the House of Delegates:

Your committee ventures to express the opinion that the well-organized and effective local pan-pharmaceutic associations should be correlated through the organization of a permanent body of delegates, and that this body of delegates should be an integral part of the American Pharmaceutical Association.

Further, that no single division of territory should be represented by more than one set of delegates.

That membership in this body should be by organizations, and each organization should be entitled to two delegates at each meeting.

In case representation is held at any time by a subdivision of the territory, the whole of which is represented by a more comprehensive organization, the strictly local body should give way to the larger one, upon the application of the latter for membership.

That fraternal delegates from associations be received and given certain privileges, but should not be entitled to vote.

That the functions of the House of Delegates be, chiefly, to offer the different states an opportunity to get together on all pharmaceutical matters of mutual interest, the greater development of the several local associations, and the enlargement of the influence and helpfulness of the American Pharmaceutical Association in all sections, and to pharmacy as a united and comprehensive whole.

Subjects in detail, which might be profitably considered by such a delegate body, are as follows: Model Pharmacy Laws, Weight and Content Laws, and Poison and Labelling Laws, and general subjects that do not now belong to any of the Sections.

It is still further recommended that the House of Delegates should be made a part of the Association and not subject to the Council; that its officers should be elected as other officers of the Association are elected; that its actions may be subject to revision by the Association in general session, upon the written petition of any ten members of the Association.

It is further advised that upon the adoption of these recommendations a committee of five be appointed to formulate the sense of this body in the form of amended by-laws, subject to the endorsement of the House of Delegates at the next annual meeting and for adoption by the Association thereafter.

HENRY P. HYNSON, Chairman.

THE ELECTION OF OFFICERS.

After the transaction of all other business the House of Delegates proceeded to the election of officers, resulting as follows: Chairman, H. P. Hynson, of Baltimore; first vice-chairman, F. W. Nitardy, of Denver; second vice-chairman, Dr. Otto F. Claus, of St. Louis; secretary, Jeanott Hostmann, of New York.

After the election of officers the meeting adjourned.

The reasons for presenting these minutes in abstract have been stated at the beginning of this report. If any member should find any incorrections or omissions, the Editor would be pleased to have the corrections. At the same time he desires to express his thanks to Chairman Hynson for his assistance in compiling this report.

THE PANAMA-PACIFIC EXPOSITION.

At the close of the Panama-Pacific Exposition the eyes of the whole country once more turned to that wonderful city of beauty and grandeur that American enterprise and enthusiasm created near San Francisco. The final celebration on December 4 gave the last evidence of the wonderful achievement of the industry, diligence, and inventiveness of the world, and the productiveness and fertility of the various countries.

The Exposition now belongs to history, but there remains in our hearts, and in particular in the hearts of those who were privileged to visit it, the inspiration and influence that its grandeur and beauty created. The members of the American Pharmaceutical Association who went to the meeting in San Francisco can not but express once more the appreciation and heartfelt thanks for the generous hospitality of our brethren and their ladies.

Before the close of the Association, a letter was sent by the president, Charles C. Moore, to the presidents of the national scientific, economic, and industrial associations of the United States, asking for a contribution to the final ceremonies.

The following is the response from our president, Dr. William C. Alpers:

"In behalf of the American Pharmaceutical Association, and in the name of the pharmacists of the United States, I send you our heartiest greetings and congratulations. You have brought to a successful close one of the greatest enterprises in the interest of peace and the betterment of the human race.

"When, in the month of August, the American Pharmaceutical Association, representing the manufacturers, the teachers of colleges and universities, the pharmaceutical wholesalers, and the apothecaries of the United States, met in San Francisco, it was done primarily to pay tribute to this wonderful embodiment

of world-progress in the peaceful arts, and every attendant looked with satisfaction and admiration on the achievement of American enterprise.

" Humble and unnoticed as the daily work of the pharmacist may be, it yet comprises a knowledge of a number of the sciences, and the threads that start in the small dispensing room lead to every part of the world. The thickets of little-explored countries, the depths of the mines in every land, the vastness of fields and plains, the unfathomed depths of the oceans, all contribute material for the daily work of the pharmacist, and the ingredients of a small prescription are often gathered from nearly every country of the globe.

" It is, therefore, with deep interest and a full recognition of its international value that the pharmacist walked through the avenues and halls of the Exposition, and viewed with astonishment and gratification the enormous progress made in all lines of his vocation.

" But more than that. To the inspection and admiration of what has been accomplished, the searching eye added the discovery of new fields and roads to further work. The thoughtful mind, recognizing what has been done all over the world, could not be closed to the fact that each new discovery, each new invention, each new development, is only the beginning of greater and more important work. Thus, this wonderful enterprise, like all preceding exhibitions of this kind, far from marking the end of finished work, rather opens new fields to the inventor and discoverer, and gives new subjects of thought to the thinker and philosopher.

" It is, therefore, with thankful gratification that the pharmacists of the United States join in these final exercises to proclaim to the world the wonderful achievement of thought and enterprise. But from our small and humble profession the eye takes a broader flight to the greater mission of this International Exposition that is now about to be closed. It will stand out more powerful and prominent than any other that came before, or any other that may come after. It demonstrated to the whole world that true progress and happiness lie in the works of peace alone, and that no betterment of the human race can be expected until the sword of battle has been sheathed. While the nations of Europe were engaged in a desperate struggle, the United States put forth this wonderful testimony of the accomplishment of the peaceful arts and sciences. The efforts of the human mind were here directed to build up and improve, not to destroy and devastate. In place of the wailings and heartrending cries of widows and orphans, we could raise the hallelujahs of industrial and commercial progress. Instead of destroying the works of art and science of former centuries, we pointed the way to further development, betterment, and happiness.

" Let, then, the spirit of international peace, that conceived, built, and successfully conducted this great Exposition, remain alive and active among us. Let us continue to be a nation of peaceful enterprise and purpose, and put before the world the shining example of brotherly love and harmony."

SCIENTIFIC SECTION

ROUTINE CLINICAL LABORATORY TESTS; THEIR DESCRIPTION AND SIGNIFICANCE.*

BY FRED. I. LACKENBACH, SAN FRANCISCO.

Clinical laboratory tests may be roughly classified as serological, histological, biological, cultural, microscopical, macroscopical, and chemical.

Of the serological tests, the complement-fixation tests for syphilis, known as the Wassermann test and the Noguchi modification of the Wassermann test, are employed very extensively. Other tests of similar nature are employed for determining the presence of gonorrhœa, cancer, and tuberculosis—the latter two, however, are of experimental interest only. Also still in the experimental stage are the Abderhalden tests for the serodiagnosis of pregnancy, cancer and dementia præcox. The scope of this paper is to deal briefly with such tests as are in common use and which have justified their diagnostic values.

The technic, briefly, of the Wassermann test as originally described consists of the following reagents: (1) The blood-serum or cerebrospinal fluid from the individual suspected to be infected; this is termed the *antibody* or *amboceptor.* (2) An alcoholic extract prepared from the liver of a syphilitic fœtus or other lipoid substance; known as the *antigen.* (3) Fresh guinea-pig serum for *complement.* (4) The serum of a rabbit immunized against sheep's red blood-corpuscles; known as hæmolytic or immune serum (hæmolytic amboceptor). (5) Sheep's red blood-corpuscles washed and suspended in normal saline solution. The first, second, and third substances, properly tested and standardized, are mixed in proper proportion and incubated for one-half hour at 37° C. Reagents (4) and (5) are mixed separately and added to the first mixture, the whole being incubated for another hour. Controls of known "negative" and "positive" serums are run at the same time as a check upon the test of the unknown serum. If the serum tested is "positive," no solution (hæmolysis) of the sheep's blood-corpuscles will occur and the fluid will remain cloudy; the antigen will have combined with the immune body present in the patient's serum, fixing at the same time the complement from the guinea-pig's serum. There is no complement present to bring about solution of the sheep's corpuscles. If the serum be "negative," complete hæmolysis or solution of the sheep's corpuscles will take place, since there is free complement to combine with the red cells and immune serum; the suspension therefore clears up. The Noguchi modification of the Wassermann test is preferred by some workers. In this test, instead of using sheep's red blood-corpuscles, human red blood-corpuscles are substituted, the supply being obtained from a finger-prick. The rabbit, instead of being immunized against sheep's corpuscles, is immunized against human red blood-corpuscles. In the Noguchi test a very small quantity of blood, drawn from the patient's finger or ear, is sufficient, while in the Wassermann test from 3 to 5 Cc. of blood is required. This is usually taken from one of the veins of the arm in front of the elbow.

These tests employed for the diagnosis of syphilis are quite reliable. There are several factors, however, which have a very important bearing upon the find-

* Read before the Scientific Section of the 63rd Annual Meeting of the American Pharmaceutical Association, San Francisco, August, 1915.

ings. The period of incubation of this disease is about three weeks, during which time no antibodies are circulating in the body fluids. A test of the patient's blood made at this time would most likely be negative. A few days later it might be strongly positive. A heavy meal, or alcoholic indulgence just before the specimen is taken, may make a positive serum negative. In the advanced stages of syphilis the blood may be negative owing to the elimination of the syphilitic antibodies in the course of the disease. In some instances the patient's spinal fluid will show positive, while the blood is negative. The administration of drugs—arsenic, mercury, or the iodides—is very likely to render a positive serum negative. On the other hand, the injection of a *provocative* dose of salvarsan may stir up a latent syphilitic infection and yield a positive serum where the diagnosis previously was indeterminate.

In the complement-fixation test for gonorrhœa the technic is essentially the same as for syphilis, except that the antigen employed consists of an extract of pure cultures of a dozen or more strains of gonococci.

The blood-serum yields another class of important tests, known as the agglutination tests. The Widal test for typhoid is typical of this group and is performed by adding to a fresh culture of the *Bacillus typhosus* or *paratyphosus* a drop of the suspected blood-serum. If the serum be positive, a characteristic clumping or agglutination of the bacteria will result. In a dilution of one part of culture to ten or twenty of salt solution, clumping should result in the course of one-half hour in positive serum. The spirillum of Asiatic cholera may also be determined by this method.

The cell count of the blood is of exceedingly great importance in diagnosis. A complete blood count consists of the estimation of the number of red cells to the cubic millimetre—normally about 5,000,000; and the hæmoglobin content expressed in percentage—normally 100; the count of the total number of white cells (leucocytes)—usually about 7500; and the percentage of the different forms of white cells—called the *differential count*. These different forms, the numbers of which vary considerably in disease, are the polymorphonuclears (neutrophiles) —normally about 65 percent; the small mononuclears (lymphocytes)—25 percent; the large mononuclears—8 percent; and the eosinophiles, from 1 percent to 2 percent. The counting is done on an apparatus known as the hæmocytometer with the aid of the microscope. The hæmoglobin content of the red cells is estimated by means of a color scale.

The leucocyte count may increase enormously in pneumonia, blood poisoning (streptococcus infections), empyema, and other pyogenic (pus-producing) infections, while in typhoid and malaria the white cell count is diminished.

In various intestinal parasitic infections, as tapeworm and trichinosis, there is likely to be a distinct rise in the eosinophiles, increasing from the normal 1 percent or 2 percent to 8 percent or 10 percent.

In some infections the bacteria circulate in the blood stream and may be identified by *blood culture*. Blood cultures are prepared by taking about 10 Cc. of blood from the patient's vein under aseptic precautions and adding to 500 Cc. of sterile bouillon. This mixture is placed in the incubator for 24 hours or longer, and examined microscopically to determine any resultant growth. The microorganisms most commonly sought in blood culture are the *Bacillus typhosus,* pneumococcus, streptococcus, staphylococcus, and para-colon bacillus.

Certain types of parasites or protozoa may be identified by microscopical blood examination. Most common among these are the various forms of malarial parasites. These forms are the *tertian,* most common in this country; the *quartan,*

and the *æstivo-autumnal.* The latter is the malignant form found in the tropics. The tertian and quartan are so named because of the interval between the attacks or malarial chills and fever. Trypanosomiasis (African sleeping sickness) and yellow fever are other types of tropical diseases of this group. Such diseases are generally communicated by bites of insects.

Examination of the spinal fluid is not infrequently of great value in diagnosis. The fluid normally is clear and colorless or slightly yellow, and carries about five leucocytes to the cubic millimetre (one or two to the microscopic field). The total quantity varies from 60 to 80 Cc., only about one-half of which may be readily withdrawn. In disease there may be an increased amount which may be under considerable pressure. It may be turbid, contain bacteria, pus-cells, and an increased number of leucocytes. Some of the organisms which may be isolated from the spinal fluid are *Micrococcus meningitidis* (cerebrospinal meningitis); *Bacillus tuberculosis; Diplococcus pneumoniæ; Bacillus influenza; Streptococcus,* and *Staphylococcus.*

Inoculation of animal—usually the guinea-pig—is a valuable means of verifying a diagnosis. For this purpose urine, spinal fluid, ascitic fluid, blood, bacterial culture, or some other substance may be used. Some diseases which permit of diagnosis through animal inoculation are tuberculosis, tetanus, rabies, and diphtheria. The animal is held under observation for periods varying from three days to some months, according to the nature of the suspected disease, provided, of course, it does not die in the meantime.

The examination of sputum may confirm the diagnosis of many diseases, most common of which are tuberculosis, pneumonia, whooping-cough, influenza, and involvements of the lung and bronchial tissues.

Examination of pus may yield the presence of staphylococci or streptococci (as in boils, abscesses, or carbuncles), gonococci (in gonorrhœa), and many other micro-organisms which may complicate an infection.

The urine is an exceedingly important aid to diagnosis. Its examination generally proceeds in three stages: physical, chemical, and microscopical. A fourth stage—cultural, to determine the identity of an infecting organism—is not uncommon. The physical examination of urine covers transparency, color, reaction, volume (in 24-hour specimen), and specific gravity. The chemical examination embraces determination of albumen, sugar, diazo reaction (for typhoid), bile-pigments, urea, indican, chlorides, diacetic acid, acetone, ammonia, etc. The urates, phosphates, sulphates, and other crystalline bodies are usually determined microscopically. Microscopical examination of urinary sediments may determine the presence of various crystals as above, casts, epithelial cells, bacteria, blood, pus, spermatozoa, and various amorphous deposits.

The examination of the urine may facilitate the diagnosis of the following diseases: nephritis, cancer of kidney, abscess of kidney, tuberculosis of kidney, renal calculus (deposits of calcium phosphate or carbonate), pyelitis, cystitis, urethritis, and prostatitis.

The urine in diabetes may yield sugar, rise in specific gravity, increase in free ammonia, acetone, and diacetic acid.

In pneumonia and chronic diseases the chlorides are likely to drop very low.

In typhoid the phosphates are likely to increase.

The variations in the sulphates have little clinical value.

In leukæmia the uric acid content may rise greatly.

In Bright's disease the urine is diminished in amount; specific gravity increases. In the acute form there may be blood, hyaline and granular casts, and epithelial casts, particularly those made up of leucocytes.

In bacterial infections the urine is likely to be turbid and contain pus or blood.

Renal calculus may be determined by the presence of blood, pus, and presence in the urine of calculi.

Impaired kidney function may be determined by kidney functional tests, as phenolsulphonephthalein, to show the diminution of excretion.

Albumen may appear in the urine in nephritis (due to pus, blood, bile, or sugar in urine), toxic albuminuria, after violent exertion, in diseases of blood, and after epileptic attacks.

Glucose may be present in urine after chloroform administration; in diabetes, hypophyseal disease, apoplexy, and pancreatic disease.

Indican in urine results from abnormalities in protein metabolism.

Examination of gastric contents embraces determination of free HCl, digestive power, presence of lactic acid, bile, digestants—pepsin and rennin content—Boas-Oppler bacilli, blood, pus, and sarcinæ.

The normal stomach acidity (HCl) is about 0.2 percent. In ulcer of the stomach there are present increased acidity and occult blood. In cancer (carcinoma) and achylia (absence of gastric ferments) there is lowered acidity.

Lactic acid suggests cancer of the stomach, as also does the presence of the Boas-Oppler bacillus. (Gastric ulcer, besides increase of HCl, may be indicated by the presence of occult blood.)

To determine digestive power, a test-meal consisting of tea and toast is given, the stomach emptied after an hour by means of the stomach-tube, and the contents examined for undigested food.

Examination of the fæces may be of great diagnostic importance. Intestinal parasites, as tapeworm, hookworm, and other parasites, may be detected by spreading the fæces on a slide and examining with the naked eye, or by searching for eggs by means of the microscope. Undigested food particles may consist of fat, meat fibres, vegetable cells, hairs, curds, and starch granules.

Blood in the fæces may indicate hemorrhoids, fistula, enteritis, cancer of rectum or sigmoid, intussusception (telescoping of the bowel), hemorrhagic disease, as purpura, scurvy, acute leukæmia; cirrhosis of the liver, gastric or duodenal ulcer, or blood may be present, due to swallowing after severe nose-bleed.

Pus in the fæces may indicate the breaking of an abscess (appendix, pus tube) into the rectum, ulcers, or intestinal catarrh. There may also be in the fæces mucus from mucous colitis; fat, due to pancreatic disease; frothy stools, as in sprue (thrush); colored stools (due to drugs), and gall-stones.

BETTER CONTROL OF COMMUNICABLE DISEASES.

A plan for securing better control of measles, whooping cough, scarlet fever and typhoid fever is being put into operation by Dr. F. M. Meader, director of the Division of Communicable Diseases of the New York State Department of Health. As soon as the cases and deaths are compiled for the previous month, the case rate and the fatality rate are worked out for each county. Where the case rate is high a circular letter will be sent to all physicians of that county notifying them of the unusual prevalence of the disease and offering the facilities of the laboratory for obtaining diagnosis in obscure cases. If the case fatality rate is high, it is assumed that the cases have not been reported, and the attention of the physician is called to the fact that the law requires that all cases, even suspicious ones, must be reported to the local health authorities.

THE PREPARATION OF SERUMS AND ANTITOXINS.*

BY CHARLES M. TWINING, BERKELEY, CAL.

The paper presents the subject of serum manufacture in considerable detail, including selection of the animal, difficulties encountered in manufacturing, preservation of the serums, etc.

The subject of serum and antitoxin manufacture has been presented many times before, yet I believe that perhaps it has sometimes been treated in a too general or too technical way, which may have made the subject one of little interest to you.

It is my purpose in this paper to take up the very practical side of the subject, to show the many difficulties which may lie in the steps that at first glance may seem very simple, and perhaps show clearly that the man who prepares the serums has his troubles, as has the man who sells them.

Taking diphtheria antitoxin as an example of the best known and most important product, we are all familiar with the fact that at the start it is necessary to prepare a toxin of the diphtheria bacillus for the treatment of the horses which are to produce the antitoxin, and in the production of this toxin lies some of the most particular work the serum maker has to do.

Very often the bacilli of diphtheria taken from the throat of very malignant cases of diphtheria in the human, and which must produce large quantities of toxin in the infected person, do not produce appreciable quantities of toxin when grown on artificial culture media. This fact has led to the adoption, by practically all producers of diphtheria antitoxin, of a particular culture of the organism isolated at the Laboratory of the New York Board of Health several years ago and known as the "Park Williams Bacillus," or Diphtheria Bacillus No. 8. This organism, when grown under proper conditions, usually produces a toxin of very high potency, yet sometimes without apparent cause the toxicity may drop to a very low point.

Ordinarily the bacillus is grown upon a culture medium made from veal and containing a relatively high peptone content, as the toxin production seems to be dependent to a large extent upon the quality and quantity of the peptone present. After the organism has grown for a period of time upon a medium which seems to be best suited for the production of toxin, it may without apparent reason suddenly refuse to produce a toxin of high potency, and in spite of every effort remain at a low level for some time, only to revert again to its original power. There is, of course, some reason for this change, but just what causes may be at work is something very difficult or impossible to determine.

When we remember that it is quite necessary to use a toxin of high potency to obtain an antitoxin of high unitage it becomes evident that this particular point in the process of manufacture is a very important one.

A toxin which will kill a 250-gramme guinea-pig within four days in a dose of $\frac{1}{100}$ to $\frac{1}{500}$ of a cubic centimetre is a very satisfactory one, and sufficient quantities of such a toxin may be easily injected under the skin of the horse to produce the maximum amount of antitoxin in the blood without injecting an excessive quantity of fluid.

The length of time of growth of the bacillus in the incubator is one important

* Presented to the Scientific Section, A. Ph. A., San Francisco meeting.

point to be determined, since if it is grown for too short a time its full toxicity is not obtained, while if grown too long the toxin formed at first is gradually destroyed and the whole becomes less toxic.

Ordinarily the bacillus is grown for six or seven days at a temperature of 37° C. to 38° C., and in the dark, since light has a serious effect upon toxin, both in its forming and afterward.

The culture medium should be in flasks having a large surface in proportion to quantity, as this organism is grown principally on the surface, and the greater the growth the greater the toxicity within certain limits.

After growth has proceeded for the proper length of time the flasks are removed from the incubator and from 0.2 percent to 0.4 percent of carbolic acid or trikresol is added to kill the organisms and preserve the finished toxin. This toxin is then filtered through a germ-proof filter, usually the Berkefeld filter, to remove the dead bacilli, since all we desire is the poison it has produced.

The toxin is stored in full amber bottles in the dark, but at best the toxicity drops quickly at first, and for best results fresh toxin should be used for the horse inoculations.

The selection of the horse is another problem about which every serum maker has his own ideas, but, as a rule, young horses four to eight years old are the most suitable and will take more toxin in a given time than older animals. However, there are exceptions to this rule, as shown by the fact that one horse over fourteen years old yielded a serum testing 1800 units per cubic centimetre, and in doing so received subcutaneous inoculations in a period of six weeks of over one million minimum lethal doses for the guinea-pig; that is, the aggregate of the toxin this horse received in six weeks would have killed more than a million guinea-pigs, each weighing 250 grammes.

As a rule, mares are preferred for serum work, since they are more easily cared for and the swelling produced by the inoculation of the toxin is not so apt to produce complications.

The methods used in immunizing the horse with toxin vary. Sometimes the toxin is weakened by heat or chemicals before injecting the first dose or first few doses. Again, the start is made with extremely small doses, as for instance $\frac{1}{100}$ of a cubic centimetre of the toxin, which represents perhaps three to five minimum lethal doses for the guinea-pig. Sometimes the horse is given an inoculation of diphtheria antitoxin just before or at the time of giving the first injection of toxin, in which case the initial dose is larger, and may be as high as 1000 minimum lethal dose.

These inoculations are usually made under the skin of the side rather than in the neck, since the swellings are probably not so painful when occurring on the side.

The apparatus used in injecting varies with the different workers, but is usually a graduated jar fitted with siphon and tube leading to the hypodermic needle; the application of air-pressure by a pump or bulb to the interior of the tube forces the toxin out, and the quantity may be read as the injection progresses.

The quantity of toxin which may be administered to a horse varies greatly with different animals, but if we accept as a standard a 300 M. L. D. per Cc. toxin, the largest quantity given at any time does not usually exceed 500 Cc. Starting with 2 or 3 Cc. of such a toxin, it may require from three to six months to bring the horse up to his greatest tolerance, and a horse usually produces a commercially valuable antitoxin within six months if at all. It is, of course, impossible to predetermine the value of a horse as an antitoxin producer; varying results are

constantly obtained, as may be shown by the fact that of a series of five horses treated in exactly the same way the antitoxin produced in a given time may run all the way from a point so low as to be of no practical value to one that tests 1000 to 1500 units per cubic centimetre, which is considered very satisfactory. It is this fact which makes the cost of production of the antitoxins very erratic and which may for one period of time show a handsome profit and for another period a loss, yet which in the end, with careful work, averages fairly close to an estimate which can be made by an experienced worker.

After the immunization has progressed for a period of two or three months, depending upon the amount of toxin given, the horse is bled from the jugular vein to determine the progress made.

The bleeding is usually made with a cannula having a diameter of 10 to 12 mm., often having a side-arm for greater asepsis. The setting of the trocar and cannula into the vein is easily done by one experienced in the work, and the animal usually makes little objection to the procedure. The amount of blood drawn from a horse in regular work varies with the weight and condition of the animal, ranging from four to eight litres, or even more in the case of heavy horses in good condition. Bleedings are usually made every thirty days, though longer or shorter intervals may be used, depending upon the condition of the animal.

The blood is drawn into sterile glass tubes having a diameter of 50 mm. and a length of 500 mm., in which the blood clots and forces out the straw-colored serum, which is the part of value containing the antitoxin. It is probable that the clot contains some antitoxin, but it cannot be readily removed, so is discarded.

After drawing, the tubes are placed in cold storage to allow the clot to form, which requires from 24 to 48 hours, differing more or less in different horses and at different periods. Sometimes the clot forms solidly and but little serum separates. Again, the separation of serum may be very great. We will recognize that commercially this is a point of very great importance, since upon the quantity of serum obtained, as well as the quality, depends the value of the animal. Upon rare occasions the amount of serum obtained is so small as to condemn the animal as a producer of serum. In case of poor separation of serum various methods to overcome the trouble have been used.

Feeding the horse various substances which may cause a freer clotting and consequent greater squeezing out of serum has been tried with more or less success. It has also been noted that in many instances lack of green feed has resulted in diminished separation of serum, which may be overcome by supplying such feed.

Another method is the placing of sterile weights upon the clot to force it down and by mechanical pressure squeeze out the serum. Such a method obviously has the disadvantage of causing greater risk of contamination.

After the serum separates it is drawn from the tubes, by the use of suction, to amber stock bottles and preserved with either chloroform or trikresol. While serum without preservative will precipitate more or less, it is this preservative which is largely responsible for the sediment or precipitate often found in commercial serums. Trikresol is more efficient as a preservative, but produces more precipitate.

It is possible, of course, to prepare a serum without preservation, but, since this entails considerably more work and has, in a practical way, little advantage, the preservative is almost universally used.

The final step in the preparation of the serum is to filter through a germ-proof filter, though this is sometimes omitted, since it is possible, even probable, that at times the filter may remove some of the active principles present. This can be

measured accurately in the case of diphtheria antitoxin, but not so with many other serums, so it may be advantageous to omit this step in some cases, especially since careful drawing and handling of the serum will almost invariably avoid contamination.

Before taking up the practical side of the purity and potency testing of diphtheria antitoxin I would call your attention to the fact that most of the diphtheria antitoxin marketed in the United States is of the purified or concentrated type, which differs materially from the natural serum type formerly supplied. In the preparation of the concentrated type of diphtheria antitoxin the blood from the immunized animal, instead of being drawn in tubes and allowed to coagulate, is drawn into bottles containing a solution of sodium citrate, which prevents clotting but allows the corpuscles to settle, leaving the plasma containing the antitoxin as a supernatant fluid, which may be decanted when the sedimentation is complete.

By this method a greater yield per horse is obtained, this increase amounting sometimes to as high as 40 percent. It should be noted, however, that such a fluid is not suited for direct inoculation into the patient, as is the case with the serum, but it must be processed before use.

Starting with the plasma, there are several methods of concentration now in use; however, the general principle underlying each is the precipitation of the antitoxin-bearing globulins in the plasma by the use of ammonium sulphate or heat and ammonium sulphate, the elimination of as great a quantity of inert solids as possible, and the resolution of the antitoxin in the smallest quantity of water possible. A small quantity of salt is added to the finished product to make it isotonic.

The concentrated form has much to recommend it, both from the standpoint of the manufacturer and the patient, the most important of which is that a much greater number of units may be administered in a given volume in the case of the concentrated than in the old type, and the rashes do not occur quite so frequently following the use of this form.

From the standpoint of the serum maker the concentrated form is preferable, since antitoxins of such low potency as not to be of value in the serum state may be concentrated to a point where they are quite acceptable.

Formerly 1000 units per cubic centimetre were considered a high potency antitoxin, while since the advent of the concentrated form unitage as high as 4800 units per cubic centimetre have been obtained; by this I mean actual material ready for use, not experimental material, which, though it may be of greater potency, may also not be in a form for practical use.

One of the factors which must be carefully considered is the solid content of the finished product, which should not exceed 20 percent. This, in fact, is one of the factors which determines the limits of potency to which a concentrated antitoxin may be raised, since the greater the quantity of antitoxin-bearing solids in the fluid the greater the specific gravity and the slower the absorption by the patient.

The tests for purity put upon diphtheria antitoxin, as well as upon other sera, are exhaustive and are quite severe.

The first test is usually made by taking 5 Cc. of material from each lot before adding any preservative, which is injected into a young guinea-pig, the animal being watched carefully for ten days.

When ready to filter the antitoxin, each filter is tested for efficiency before being used. The Berkefeld filter is used, which, as you may know, is a cylinder of diatomaceous earth having pores so small that ordinary bacteria cannot pass through, though fluids of relatively low specific gravity may do so. These cylin-

ders, properly prepared, are sterilized in steam under pressure, and when cool are set up in the usual way and a culture of some harmless organism, such as the *Bacillus prodigiosus,* is placed in position and filtration started. A small amount of the filtrate is collected and planted on sterile culture media to determine whether or not any of the organisms got through. If so, the filter is discarded. If not, it is again sterilized in steam and used for the filtration of the antitoxin.

After the filtration of the antitoxin is completed several " plants " from the finished material are made on sterile culture media to determine its freedom from living bacteria. These tests remain in the incubator for seven days, which will determine without question the purity or contamination of the material.

Again, before the antitoxin is filled a small amount is removed from the stock bottle and tested for purity on appropriate media, both aërobically and anaërobically.

After filling the syringes or bottles another cultural test is put upon two or more finished packages from each lot.

The tests for potency require a great deal of careful work, so I shall not attempt to give you a very detailed description of all the steps, but only the most important ones.

The first step requires the very accurate standardization of the toxin in the determination of what is termed the L + dose, which is the quantity of toxin necessary to kill a 250-gramme guinea-pig when mixed with one " unit " of antitoxin. Broadly speaking, a unit of antitoxin will neutralize 100 M. L. D. of toxin, so the L + dose is broadly 101 M. L. D. (I say " broadly " because these statements are not strictly correct, several factors affecting the statement.) To determine the strength of the antitoxin to be tested, a series of guinea-pigs weighing 250 grammes are selected, appropriately marked to distinguish them, and each pig receives one L + dose, together with a quantity of serum previously determined and mixed with it. For instance, if a guinea-pig received one L + dose of toxin and 1 Cc. of antitoxin, which pig lived for just 96 hours, we would say that the serum tested one unit per cubic centimetre; however, if the same results were accomplished with $\frac{1}{100}$ of a cubic centimetre, it must necessarily be 100 times as strong, or 100 units per cubic centimetre; or, if $\frac{1}{500}$ of a cubic centimetre only was required, then it must contain 500 units per cubic centimetre.

Many things may affect the accuracy of the test unless great care is used, as may be shown by the fact that guinea-pigs from one source may be more resistant than from another source, and thereby discordant results may be obtained unless the source of supply be carefully watched. This has led many careful workers to establish breeding-pens of their own, with a careful watch kept to preserve the breeds selected.

The United States Government supplies a standard antitoxin, against which each serum maker supplying serum in the United States must standardize his toxin, which in turn is used to determine the unitage of the antitoxin produced.

Since each horse reacts differently to the treatment given him and produces more or less antitoxin, depending upon this treatment, the testing of the antitoxin may sometimes consume considerable time and a large number of animals.

The final potency tests should be put upon the antitoxin after filtration, since some of the antitoxin may be removed by the filter. This is especially so in the case of the concentrated type, since the specific gravity of this form is greater than the serum form, and it often contains a greater amount of precipitate, which may carry some of the antitoxin and reduce the potency by being held back in the filter.

When all the tests are completed the material may be filled into appropriate

containers, which in the United States is almost invariably a form of syringe which can be easily prepared for use. The American physician demands convenience, and the manufacturers have been quick to supply this demand. These syringes must, of course, be quite sterile before filling the antitoxin into them, and the process of filling is one where great care must be observed.

Various forms of apparatus have been devised for the aseptic filling of antitoxin, especially since the concentrated form has come into such general use, as it may at times be rather heavy in consistency and harder to fill than the serum.

While gravity may sometimes be effective in running the material from the stock bottle to the syringe through a siphon and tube, usually arrangement is made to apply pressure. A form of apparatus is also used which automatically measures the amount as it goes to the syringe.

Since antitoxin decreases in potency with age, the amount put into a package must be in excess of its labelled unitage in direct proportion to the length of time set for its market life. For instance, let us say we are to put up a 1000-unit package of antitoxin and we want to put a " return date " upon this package one year hence. Knowing that antitoxin may decrease in unitage from 10 percent to 25 percent per year, we must put into the package an excess of 25 percent to be assured that it will test up to its labelled unitage at the end of that year.

Both diphtheria and tetanus antitoxin may be evaporated in a vacuum and dispensed in a dry form, which retains its potency for many years. However, the time and labor of getting the dry powder into solution make this form of value only in remote places where the serum is used but rarely and the keeping quality of the powder is the greatest consideration.

The method of making tetanus antitoxin does not materially differ from that of making diphtheria antitoxin, both of them being true antitoxins. The making of tetanus toxin is perhaps easier than that of diphtheria, though the method is quite different, in that, while the diphtheria bacillus requires a liberal supply of oxygen for its best toxin production, the tetanus bacillus must be grown in the absence of oxygen, since it is what we term an " anaërobe " and grows only when oxygen is excluded. This explains why deep, dirty wounds like nail punctures most often produce tetanus, since the germ is placed deeply enough to exclude the air, where it can grow and produce toxin in the body.

The strength of tetanus toxin is very much greater than that of diphtheria, as shown by the fact that of a good toxin a dose of $\frac{1}{10000}$ to $\frac{1}{20000}$ of a cubic centimetre is fatal to the guinea-pig. The toxicity may run much higher than this, though for regular work this strength answers nicely.

The testing of tetanus antitoxin differs from that of diphtheria antitoxin in that the guinea-pigs used have a standard weight of 350 grammes instead of 250 grammes, and the unit is the quantity which will protect the animal against approximately 1000 minimum fatal doses of the toxin, so it is comparatively ten times as strong as the unit of diphtheria antitoxin.

This will explain in some measure the reason why the apparent strength of tetanus antitoxin is not so great as the antitoxin of diphtheria, since a 5000-unit package of the former usually requires a larger quantity of fluid. However, 5000 units of tetanus antitoxin really corresponds to 50,000 units of diphtheria antitoxin, so its strength is comparatively much greater.

The United States Government supplies standard tetanus toxin to be used in testing the antitoxin, and all such antitoxin is so tested.

The concentration of tetanus antitoxin is carried out in much the same way as described in the making of diphtheria antitoxin, and, since it is used in large

quantities in the treatment of tetanus, a high concentration is much to be desired.

Tetanus antitoxin is sometimes supplied in a dry form to be dusted upon the surface of wounds suspected of being infected with the tetanus bacillus.

I have here described the two antitoxic serums which are of the greatest importance of any of the serums. These are the only true antitoxins of any importance.

When a patient is infected with the diphtheria bacillus the organism usually localizes in the throat and, by producing quantities of toxin, poisons the patient more or less rapidly, but the germ usually remains only at this point, and the poison is what causes in most cases the symptoms of the disease and death where death occurs. Also, in tetanus, the germ usually localizes at a point where a wound has been inflicted, and from that point it elaborates toxin which poisons the nervous system.

Now note that it is only these two diseases that act in this way, and, since they kill by their toxin, then the proper treatment is by the neutralization of the toxin, this being done by the antitoxin. However, the bacteria causing other diseases do not form toxin under artificial conditions, nor is it known that they produce a definite toxin in the body, so we must proceed with the making of a serum by using the living, virulent bacteria themselves in the treatment of the horses used to produce serum.

Such serums are not antitoxins, but are known as antibacterial serums, and as an example, perhaps, antistreptococcic serum is the best known. The process of making this serum differs in detail only with different serum makers, but the first step is the procuring of streptococci from human patients affected with the several diseases due to this organism. This may be erysipelas, septicæmia, various suppurative conditions, etc., and the greater the number of different cases from which these are gotten the greater the range of efficiency of the serum in treatment, presumably.

Usually the first few inoculations of the horse are of the killed bacteria, followed by increasing amounts of the live, virulent streptococci.

Sometimes the serum maker places his dependence upon one strain of the organism; that is, the streptococcus from one case of one disease, which has been passed through guinea-pigs or rabbits many times until it is very virulent. Whether serum so made is as efficient as one made by using many strains not so virulent but from a wide range of diseases due to the streptococcus is a disputed question, but the greater part of the serum made in America is of the many-strain type, which is therefore termed a polyvalent serum.

Quite naturally the effects upon the horses are greater in using the living bacteria than from the use of toxin, since the effect of the toxin is self-limited, because it cannot increase in quantity or virulence, and can be counteracted by antitoxin if the reaction is too severe, while with the live organisms, which can increase in number and virulence, great care must be used, as they may cause death, as would any natural disease due to the same cause, therefore it is necessary to build up the horses' immunity slowly and carefully, all of which requires much time; so the production of any antibacterial serum of proper potency requires more time than the production of either tetanus or diphtheria antitoxin.

The testing of the efficiency of antibacterial sera cannot be done with the accuracy that obtains in the testing of the antitoxins, since it is not known upon just what principles their curative action depends.

The tests put upon antibacterial sera may be a determination of the opsonin content, which is the quantity of a substance that prepares the bacteria causing a disease so they may be easily destroyed by the phagocytes or white blood-corpuscles.

The agglutination test is used to a considerable extent, this test showing the power of the antibacterial serum to agglutinate or clump the disease-producing bacteria.

Another test of some value is the determination of the quantity of bacteriolysin, or substance which acts by dissolving the pathogenic bacteria.

Tests upon small animals have been used to a considerable extent by first ascertaining the minimum amount of the organism, against which the serum is protective, which is fatal to a mouse or guinea-pig. Then a series of these animals are given this minimum fatal dose and varying quantities of the serum under test. The serum should protect in a quantity arbitrarily set as a standard. However, it is extremely difficult to determine the minimum fatal dose of a living organism because of the great difference in susceptibility and resistance among animals of the same lot, even when carefully selected. As a matter of fact, some tests of this kind would tend to show that even a very well made serum had no protective power, which may indeed be the case in so far as the mouse or guinea-pig is concerned, yet this cannot be considered a measure of its effectiveness for the human.

I cite antistreptococcic serum as an example because it is the best known and is a good type of antibacterial serum. Others, like antipneumococcic, antimeningococcic, anti-anthrax, anti-dysenteric, and antigonococcic serum, are used to some extent, and are made in much the same way. Antimeningococcic serum has given some very nice results during the last few years. The making of antimeningococcic serum is attended with probably more danger to the horse than the others, since to produce a serum of high potency it is necessary to force the treatment of the horse to the limit of tolerance. In the making of antimeningococcic serum, in addition to dead and living meningococci, we use autolysates of the organism, which is the germ grown in appropriate culture media and allowed to remain there until dissolved by the action of its own poisonous products.

The preservation of antimeningococcic serum presents a problem which is not present in most other serum work, in that this serum is administered almost entirely by inoculation into the spinal canal; therefore the kind and amount of preservative are of great importance.

Quantities of trikresol which are quite harmless when injected subcutaneously or intravenously are, when injected intraspinally, more or less dangerous. Therefore it is necessary to use a smaller quantity of preservative in this serum than in others, usually 0.1 to 0.2 percent trikresol or 0.1 percent chloroform.

When chloroform is used it may be volatilized by the application of mild heat to the serum before using. This, however, entails considerable work and is seldom done.

Antivenomous serum is another type of serum which has been used in this country to some extent, especially in the treatment of rattlesnake bite. This serum is prepared by treating rabbits, goats, or horses with gradually-increasing doses of venom from poisonous snakes, particularly the cobra and rattlesnake. The effect of venom when injected into the animal is immediate, and great care must be used in graduating the doses. Heat is sometimes used to attenuate the venom before injecting it. It will be noted that such a serum is not an antitoxin of the type of diphtheria or tetanus antitoxin, nor is it an antibacterial serum in any sense, but, as its name implies, a serum opposed to venom.

The venom from the cobra causes a dissolving of the blood-corpuscles of the patient bitten; also, it affects the nervous system considerably, while the effect of rattlesnake bite is shown principally upon the endothelium of the blood-vessels, which accounts for the severe hemorrhages usually seen in such cases. Therefore it would appear that the antitoxin for one type of venom would not be effective

in the treatment of bite carrying the other type. It should therefore be borne in mind that the most effective serum for each type of bite is the one made by the use of that particular venom. Serum may be made by using varied venoms in the treatment of the serum-producing animal, making a polyvalent antivenomous serum.

Another type of serum is that known as antipollen serum or pollen antitoxin (hay-fever serum).

The pollen of certain plants is the cause of certain very distressing symptoms in some persons, and in an endeavor to obtain an anti-substance a serum has been produced by the treatment of horses with this pollen, properly prepared. The pollen is mixed with sodium chloride solution containing a preservative, and this mixture is precipitated with alcohol and the precipitate is dissolved in salt solution.

The results from the use of this serum have been, on the whole, fairly good in properly-selected cases.

It should be noted that such a serum is applied locally by dropping into the eye or spraying into the nostrils or throat instead of by subcutaneous, intravenous, or intraspinal inoculation, used in administering other serums.

Normal serum, as its name implies, has no specific qualities and is simply the serum obtained from the normal blood of the human or from various animals, as the rabbit, sheep, or horse.

The serum of this type in greatest use is from the horse, and is prepared as are the other serums, except that the horse receives no specific treatment. The serum is useful in supplying those substances which facilitate clotting of the blood, and in the treatment of some types of hemorrhages in the human it is of great value.

Efforts are sometimes made to increase the quantities of these clot-forming substances in the blood of the horse by special feeding, which is probably of little avail; also by frequent bleedings we may obtain a stimulation of the production of such substances, and, therefore, perhaps, a horse which has been bled many times may produce a better normal serum than one bled but seldom.

The fact that a few of the serums have been quite effective has led to the preparation of many that have been of little or no value. These are of so little importance that they are not here mentioned. Among these, however, are a few of some interest because they are of a still different type from those before described.

One of the most absurd is an anti-alcoholic serum for the treatment of persons who imbibe too freely. Such a serum has been advocated, made by treating horses with large quantities of alcohol by the mouth, presuming that after a period of such treatment the blood of the horse will contain antibodies effective in treating alcoholics.

One is constrained to remark that if this theory were sound some very effective serum might be obtained by bleeding certain human beings without any further treatment.

No doubt many obstacles now standing in the way of the production of effective sera will be removed by the constant and conscientious efforts of the many who are now engaged in this work, and it is not too much to predict that some day we will have serum of one type or another that will be of sufficient specificity for each of the diseases due to bacteria to reduce the mortality in such diseases, as diphtheria antitoxin has in the last twenty years reduced the diphtheria mortality.

That the methods now used in the production of antibacterial sera must be changed or greatly augmented there is but little doubt. Along what lines such changes may be made must be left to one whose power of visualization is greater than mine.

THE RETARDING EFFECT OF CERTAIN SUBSTANCES ON PEPSIN DIGESTION.*

BY C. F. RAMSAY.

The author finds that comparatively small amounts of quite a number of salts in combination with pepsin interfere or negative the test for pepsin, but that in the preparations of the National Formulary the added constituents of compound preparations of pepsin do not inhibit the activity of the pepsin, at least in so far as the test is concerned.

During the course of some work which required the testing of a number of tablets and elixirs containing pepsin it was found that some of these samples did not have the pepsin activity which they should have possessed. Some of the tablets contained a sufficient quantity of calcium carbonate to lessen the acidity of the acid medium, thus making the tablets appear to contain less pepsin than was really present. In other samples there were present substances which by their mere presence retarded the pepsin digestion.

In considering the retarding effect of certain substances on pepsin digestion we must bear in mind the extremely small amount of pepsin that is needed to bring about the transformation of a large amount of albumen. For instance, if a sample of pepsin is 1 in 3000 U. S. P., then one gramme would digest 3000 grammes of egg albumen. Ten grammes of albumen, the amount used in the U. S. P. test, would require only 0.0033 gramme of pepsin to digest it. If one fluidrachm of a pepsin solution digests 1200 grains of albumen, then ten grammes of albumen would require only 0.47 Cc. of this solution. The small amount of pepsin required to digest a large amount of albumen probably accounts for its sensitiveness toward other substances.

The writer finds that pepsin is quite sensitive toward iron and bismuth. In the N. F. Elixir of Pepsin and Iron there is no retarding effect from the amount of citro chloride of iron specified, but if twice as much iron is used the pepsin tests only 1 in 2250, or 75 percent of what it should, and if four times the amount is used the pepsin tests only 1 in 1800, or 60 percent of what it should. In the Elixir of Pepsin and Bismuth N. F. there is no retardation, but if twice as much glycerite of bismuth is used the pepsin tests only 1 in 2250, or 75 percent of what it should, and using three times the amount of bismuth the pepsin tests only 1 in 1800, or 60 percent. In determining the retarding effect of substances on pepsin digestion, the writer placed the amount of the pepsin 1 to 3000 required for ten grammes of egg albumen into each of ten bottles containing the albumen. Three of these bottles were reserved as the standards, and to the other seven were added different amounts of the substances being tried out for their retarding effect. It was first determined how much of the substance had to be added to show an appreciable retardation. Then larger amounts were used. For instance, adding 0.01 gramme of potassium and sodium tartrate to 10 grammes of egg albumen, the strength of the pepsin was not affected, but adding 0.02 gramme made it test 1 in 2750, and with 0.03 gramme it tested only 1 in 2500. The retarding effect of the following substances was carried out in the same manner:

* Read before Scientific Section, A. Ph. A., San Francisco meeting.

Sodium Phosphate.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Magnesium Sulphate.

0.0025 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.01 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.02 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.03 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Ammonium Chloride.

0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Sodium Chloride.

0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.05 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.07 gramme caused the pepsin to test 1 in 1750, or 58.0 percent

Calcium Chloride.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.04 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Potassium Chloride.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Magnesium Chloride.

0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2750, or 91.7 percent

Manganese Chloride.

0.02 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2500, or 83.4 percent

Aluminum Chloride.

0.02 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2500, or 83.4 percent

Saccharin.

0.01 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.02 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Cane-sugar.

No retarding effect using as much as 0.05 gramme.

Tannic Acid.

0.05 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.1 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.2 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Chloroform.

0.1 Cc. makes it almost inert.

Nicotine.

0.02 Cc. pure nicotine retards the pepsin slightly. Above this the retardation is very marked.

Pancreatin.

0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2750, or 91.7 percent

Papain.

0.04 gramme caused no effect.

Glycerin.

0.8 gramme has no effect.

Alcohol.

1.5 Cc. had no effect.

Alkaloids.

With strychnine alkaloid, citrate, and sulphate there was no retardation, using as much as 0.04 gramme.

Caffeine showed no effect.

Morphine had no influence unless 0.01 gramme was used.

0.02 gramme quinine hydrochloride caused the standard to test 1 in 2750.

0.005 gramme of quinine sulphate caused the standard to test 1 in 2750, and with 0.02 gramme it tested 1 in 2500.

Spices.

Powdered ginger, cloves, nutmeg, and cinnamon had no effect.

From the above results we find that the N. F. Elixirs of Iron and Pepsin and Bismuth and Pepsin do not contain enough iron or bismuth to cause a retarding effect in the testing of these elixirs, but if the amounts of iron or bismuth were doubled the test would show less pepsin than is really present, because of the action of the metallic salts on the pepsin in the test. A combination of pepsin with other salts is not very common, but it may occur in prescribing to satisfy special conditions. It is to be noted that pepsin digestion is interfered with whenever any of the common medicinal salts are present to the extent of about three times the amount of pepsin. The sulphates have a greater retarding action than the other salts tried, but magnesium sulphate appears to be even more poisonous to pepsin

than the others. In addition to the above, it must be remembered that any salt which is present in sufficient quantity to lessen the acidity of the acid medium will make the pepsin appear less active, and if sufficient to neutralize the acid the pepsin will be rendered inactive.

As regards organic bodies, we find that cane-sugar has no effect, while saccharin has a decided influence.

Glycerin, alcohol, common alkaloids, spices, pancreatin, or papain has no influence on the test in proportions that are likely to be found in medicinal preparations.

Tannic acid and chloroform are quite injurious to pepsin, even in small proportions.

Very small amounts of nicotine show a decided injurious action, in contrast to the other alkaloids tried.

In conclusion, it must be remembered that in the testing of pharmaceutical preparations containing pepsin for pepsin activity or content the presence of inorganic salts is not a matter of indifference in the test, but must be taken into consideration. If these salts are present in sufficient quantity to reduce the action of the pepsin, the test will show less pepsin than is really present. In such cases the solution should be diluted to the point where the salt will be below the amount which influences the pepsin digestion. There is no evidence that the pepsin is killed in the original preparation by the salts, but the test is rendered inaccurate by the presence of these if in large enough proportions.

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Detroit, Mich., June 30, 1915.

VALUATION OF RHAMNUS BARKS.

Tunmann (*Apoth. Zeit.*) gives the following simple method for estimating the anthraquinone derivatives in barks of the various species of rhamnus. The dry, finely powdered bark (1.6 grammes) is boiled with 100 grammes of 4 percent sodium hydroxide solution in the case of rhamnus purshiana (or with a 3 percent alkaline solution in the case of rhamnus catharticus) and the mixture shaken for 10 minutes. After allowing the drug to settle the liquid is decanted upon a double filter, the residue shaken again for 10 minutes with 60 grammes of the caustic soda solution, the liquid filtered also and the filter and residue washed with 10 Cc. (mils) of caustic soda solution and water. The combined alkaline liquids are acidulated with hydrochloric acid and shaken for 30 minutes with 160 grammes of chloroform. The mixture is allowed to stand for two hours; 120 grammes of the chloroform solution are filtered off and shaken out with 120 grammes of caustic soda solution. After allowing to separate, 100 grammes of the alkaline solution are filtered, acidulated with hydrochloric acid and allowed to stand over night. The precipitate is then collected on a tared filter, washed with water acidulated with hydrochloric acid and dried at 60° C. to constant weight. The weight multiplied by 100 gives the percentage of anthraquinone derivatives in the bark. By this process rhamnus frangula assayed 3.8 percent; rhamnus carniolica, 4.1 percent; rhamnus purshiana, 1.8 percent, and rhamnus catharticus, 2.01 percent.—Through *Druggists' Circular.*

RESIN JALAP.*

BY J. PAUL SNYDER.

The author finds that the U. S. P. standard of 35 percent chloroform soluble matter in resin of jalap is indefinite, because the amount depends entirely on the method employed for extracting the resin.

His conclusions are that the Pharmacopœia should state definitely the amount of sample and chloroform to be used, the method to be employed, and the length of time the resin should be treated with the solvent.

The United States Pharmacopœia VIII revision directs that not more than 35 percent of resin should be soluble in chloroform. However, the Pharmacopœia does not give any definite direction as to the method that should be used to obtain the chloroform soluble portion, and, as the manipulation is left entirely to the discretion of the analyst, the method of procedure that would undoubtedly suggest itself to him would be to add to a weighed portion of the resin several successive portions of chloroform, carefully stir the resin and the solvent, filter and collect the different portions of chloroform, evaporate the chloroform, dry to constant weight and weigh. However simple the above appears, there are two factors which cause considerable error in the results.

1. When the chloroform is added to the jalap a sticky, gummy mass results, and it is improbable that the chloroform penetrates to all portions of the resin, even with considerable stirring, and we do not obtain the entire amount of the chloroform soluble. Placing the jalap and chloroform in a cylinder and shaking on a mechanical shaker does not offer any assistance, as the resin sticks to the sides of the cylinder, and, again, the solvent does not come in contact with all portions of the resin.

2. The chloroform soluble portion does not appear to be extracted with a reasonable number of extractions. A one-gramme sample, after being treated with 16 successive portions of chloroform, still contained some chloroform soluble, as from the last portion a weighable residue was obtained. A second resin yielded a residue after being subjected to 19 portions of chloroform.

To continue the extractions further than this number of times is not practical, and this method was therefore discarded.

A weighed portion of the resin was then dissolved in alcohol, transferred to a separatory funnel, and an equal volume of water added, and the whole shaken out with several portions of chloroform, the chloroform filtered and collected in a tared flask, the chloroform evaporated, and the flask heated and weighed. This yielded high results, and, as a portion of the alcohol readily mixed with the chloroform, this method was rejected.

It was now thought advisable to resort to the Soxhlet apparatus, and a one-gramme sample was extracted with chloroform for twenty hours, the chloroform evaporated, the flask dried and weighed, and it was found that practically all the resin was entirely soluble in chloroform. One thing, however, we noticed was that after the chloroform had cooled down in the flask a portion of the resin

* Read in abstract before Scientific Section, A. Ph. A., San Francisco meeting

separated and clung to the flask in sticky masses. We now decided to treat a portion of the resin with chloroform, under a reflux condenser, cool the extraction, and filter out the undissolved residue, evaporate dry and weigh. We accordingly did this, and found that the results were higher than the U. S. P. limit, 35 percent.

We then deemed it necessary to investigate the solubility of resin jalap in chloroform, and the following is the result of this investigation:

Sample No. 1 submitted by our manufacturing department:

Chloroform soluble by Soxhlet method, 98.5 percent.

Chloroform soluble by Reflux method, 41.3 percent.

An examination of the drug from which this resin was prepared showed that it conformed to the U. S. P. tests for identity and purity. We then prepared from this lot of jalap a small portion of the resin (sample No. 2) according to the directions given in the U. S. P., and which gave the following results:

Chloroform soluble by Soxhlet method, 78.6 percent.

Chloroform soluble by Reflux method, 42 percent.

A sample of lot No. 1 was submitted to a well-known firm of analysts, with the direction that they examine the resin according to the U. S. P. They reported the chloroform soluble to be 16.8 percent. A request for their method of obtaining the chloroform soluble portion was then made to them, and they replied that they had made the test according to the following:

One gramme of the resin was stirred up with five or six portions of the solvent in a small beaker. The solvent was filtered into a weighed flask, the solvent distilled off, and the resin dried to constant weight.

We then informed them that by using a similar method we were unable to completely exhaust the resin with from fifteen to twenty portions of chloroform, and stated that by using the Soxhlet apparatus we obtained considerable higher results.

They then replied as follows: "The chloroform soluble as determined by us (16.8 percent) is undoubtedly too low. We have determined the chloroform soluble by extracting in a Soxhlet, allowing the extracted mass to stand over night, and filtering out the insoluble resin. Testing in this way we get a chloroform soluble of 33.80 percent, or a trifle under the U. S. P. limit. This is not a very satisfactory method of extraction, as the resin floats on the chloroform and sticks to the sides of the tube, and some insoluble resin comes over the surface. We next tried boiling the resin in chloroform with a reflux condenser, allowing to stand over night and filtering off the chloroform soluble. This amounts to 41.8 percent, but the resin is not completely soluble in cold chloroform, a jelly-like mass remaining in the flask. The resin obtained from the Soxhlet extraction dissolves very readily in cold chloroform. In each case where an extraction of this kind is made it is necessary to allow the extract to cool before filtering from the insoluble resin, and it is also necessary to test the extracted resin by dissolving it in chloroform. In extracting a resin of this kind more or less of it will be carried over into the extraction flask.

"When possible we always prefer to dissolve the material in the cold solvent."

Letters sent to various manufacturers of resin jalap, requesting them for their method of obtaining the chloroform soluble, brought forth the following two replies:

From manufacturer No. 1: "We find it makes some difference as to how the test for chloroform solubility is applied. For example, in one case, working on exactly the same jalap resin, when it was powdered and then mixed with sand and extracted with chloroform, 21 percent was found to be soluble in chloroform.

Practically the same result was obtained if it was mixed with talc, but when the powdered resin was slowly added to the chloroform a little over 28 percent solubility was found.

" The most satisfactory way of applying the test we have found to be as follows:

" Take a gramme of the finely-powdered resin and add it to 100 Cc. of chloroform contained in a flask which can be tightly stoppered, shake in a mechanical shaker for several hours, let stand to settle and decant the chloroform through a filter paper, wash the residue with a little chloroform (about 25 Cc.), evaporate the combined chloroform filtrate to dryness in a tared flask, and weigh the residue."

From manufacturer No. 2: "About one gramme of a coarsely powdered sample is weighed, and this is extracted in a beaker or small evaporating dish with chloroform, using a stirring rod to aid in the extraction. The chloroform is then decanted from the residue each time onto a small filter and filtrate caught in a tared beaker. These extractions are repeated until the chloroform, on evaporating a few drops, shows no residue. The filter washed thoroughly with chloroform, and total chloroform filtrate is evaporated on water-bath. The residue is dried at 100° C. and weighed."

In the method submitted by manufacturer No. 1 no attempt is made to determine if the chloroform soluble portion has been completely extracted by the chloroform, while with the method submitted by manufacturer No. 2 the evaporation of a few drops of the solution is not sufficient to show the completed extraction with the solvent.

From our investigation of the method of stirring a portion of the resin with several portions of chloroform, it would appear that neither method submitted by the two manufacturers is effective for the complete removal of the chloroform soluble portion of resin jalap.

We then prepared sample No. 3, which was a resin prepared from another lot of jalap which had been found to be U. S. P. quality, and when tested for chloroform solubility by the Soxhlet and Reflux methods yielded the following percentages:

Chloroform soluble by Soxhlet method, 69.7 percent.

Chloroform soluble by Reflux method, 41.9 percent.

Samples Nos. 4, 5, and 6 were purchased in the open market from reliable manufacturers, and from which the following results were obtained:

No. 4, chloroform soluble by Soxhlet method, 84.6 percent.

No. 5, chloroform soluble by Soxhlet method, 76.2 percent.

No. 6, chloroform soluble by Soxhlet method, 74.6 percent.

No. 4, chloroform soluble by Reflux method, 41.8 percent.

No. 5, chloroform soluble by Reflux method, 38.4 percent.

No. 6, chloroform soluble by Reflux method, 38.6 percent.

Sample No. 7 was secured from Dr. Geo. M. Beringer, of the U. S. P. Revision Committee, and which is claimed by him to be a resin jalap, strictly U. S. P., made by him from authentic drug purchased for U. S. P. committee. This gave the following solubilities:

No. 7, chloroform soluble by Soxhlet method, 94.1 percent.

No. 7, chloroform soluble by Reflux method, 53.1 percent.

This sample was also tested by simply repeatedly washing the resin by pouring the chloroform on the resin, stirring and filtering the solution, collecting the filtrate, evaporating to dryness, heating and weighing. However, after the sixteenth washing a weighable portion was still being extracted.

The chloroform used in the above determinations was examined according to the U. S. P. VIII and found to answer these requirements for purity.

The following is a tabulated list of the results obtained by the Soxhlet and Reflux methods of the seven samples examined:

Samples	Soxhlet method	Reflux method
Number 1	95.5	41.3
Number 2	78.6	42.0
Number 3	69.7	41.9
Number 4	84.6	41.8
Number 5	76.2	26.4
Number 6	74.6	36.6
Number 7	94.1	53.1

Conclusions.—The U. S. P. standard of 35 percent chloroform soluble for resin jalap appears to be very indefinite, the amount of chloroform soluble depending upon the method used to extract the resin.

From the above data it would appear that it would be highly desirable for the U. S. P. IX to state definitely the method that should be used, the amount of sample, chloroform, and the length of time the resin is to be treated with the solvent, as the chemist would then be able to secure concordant results, and no difficulty would arise as to whether the resin was of U. S. P. quality or not.

Also, in concluding, I wish to thank Mr. R. C. Drake for analytical data, and to also acknowledge my indebtedness to Mr. J. Fred. Windolph for his many valuable suggestions.

ANALYTICAL LABORATORIES OF THE NORWICH PHARMACAL COMPANY.

DETECTION OF SMALL QUANTITIES OF GLYCERIN.

Mandel and Neuberg (*Biochem. Zeit.* through *Apoth. Zeit.*) have worked out a method for detecting small quantities of glycerin, depending on the conversion of the latter into glycerose and identifying this by the well-known orcin reaction. About 2 Cc. (mils) of the glycerin solution are mixed with 3 drops of normal sodium hypochlorite solution and the mixture boiled for one minute. After the addition of three more drops of the hypochlorite solution the liquid is boiled again for one minute, then mixed, while still hot, with three drops of hydrochloric acid (1.124) and boiled for 30 to 60 seconds or until the chlorine is expelled and a perfectly colorless solution is obtained. The liquid is then mixed with an equal volume of fuming hydrochloric acid and a few crystals of orcin and boiled again, when in the presence of glycerin a violet or greenish-blue coloration will be produced. It is well known that pentoses, etc., give a similar reaction, but these products can easily be distinguished from glycerin by their reducing power on Fehling's solution. Glycerin reduces Fehling's solution only after having been oxidized to glycerose.—*Druggists' Circular.*

CONTRACTION PRODUCED BY SOLUTION OF SALTS.*

BY ALBERT BOLENBAUGH.

The paper briefly summarizes the conclusions of experimenters on volume changes, produced by the solution of salts. The table accompanying shows the contraction values of some in solution of various strengths.

It is a well-known fact that when solvent and solute are brought together to form a solution a contraction in volume is usually produced. Many workers have made investigations on these volume changes, and much has been learned regarding their nature. Tyrer accepts the following possibilities as influences to volume change:

1. Ionization.
2. Association of molecules of solute.
3. Association of molecules of solvent.
4. Hydration of undissociated solute.
5. Hydration of ions.

The method for investigating the causes of volume changes seems to have been one depending upon the use of optically active substances. This method indicated by Winther makes possible the determination of the actual volume of both solute and solvent.

Tyrer states "that no generalizations of importance have resulted, due no doubt to the complexity of the factors which come into play, all of which may vary with concentration." It may be interesting, however, to summarize some of his conclusions:

1. "In solutions in which no chemical changes of any kind occur, the specific volume of the solute is constant, independent of the concentration."
2. "The volume of an electrolyte in solution shows no tendency to assume a constant value, but goes on decreasing as the dilution increases, and in many cases becomes negative."
3. "Molecular association of the solute in solution is without influence on the apparent volume of the solute. The behavior is the same as if the molecules were normal."
4. "Solvate formation,—that is, combination of the solvent and solute,—generally causes a contraction in the apparent volume of the solute, and, further, the volume of the solute in solution generally decreases with decrease of concentration. But in some of the cases investigated the formation of a solvate appears to be without influence on the solution volume of the solute."
5. "With aqueous solutions of electrolytes it is probable that in strong solutions the undissociated molecules are hydrated, and in dilute solutions the ions are hydrated."

The following table has been compiled showing contraction values for six of the more common salts in various solution strengths:

* Read before Scientific Section, A. Ph. A., San Francisco meeting

CONTRACTION PRODUCED BY SOLUTION.*

Grammes of salt in 100 of water	Observed volume	Calculated volume	Percent of contraction
	NaCl		
	Density—2.150 (Clarke)		
	(Gerlach)		
5	101.4	102.33	0.90
10	103.2	104.65	1.48
20	106.7	109.30	2.38
30	110.4	113.95	3.11
	KI		
	Density—3.07 (Clarke)		
	(Kremers)		
15	104.0	104.88	0.84
50	114.2	116.29	1.70
85	124.5	127.68	2.49
	$KC_2H_3O_2$		
	Density—1.472 (Gerlach)		
	(Gerlach)		
20	110.7	113.59	2.54
50	127.9	133.97	4.53
100	157.6	167.95	6.16
	$CaCl_2$		
	Density—2.216 (Schroeder)		
	(Gerlach)		
10	102.0	104.51	2.40
30	107.0	113.53	5.75
60	116.8	127.06	8.07
	$MgSO_4$		
	Density—2.65 (Clarke)		
5	100.10	101.89	1.79
10	100.33	103.77	3.31
20	101.75	107.55	5.39
	$Pb(C_2H_3O_2)_2$		
	Density—3.251 (Schroeder)		
	(Gerlach)		
15	104.3	104.61	0.28
30	108.8	109.23	0.39
80	124.3	124.61	0.24

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* These tables were compiled from values found in Smithsonian Physical Tables, 1904, pp. 131–134.

SECTION ON EDUCATION AND LEGISLATION

NOTES ON TEACHING DISPENSING.*

BY E. FULLERTON COOK, P.D.

The teaching of dispensing in colleges of pharmacy is not limited to that particular time when the student stands before a prescription counter and actually compounds a physician's prescription under the guidance of an instructor, but this paper is limited largely to that phase of the subject.

It is during this time that the training in other departments is under trial. Prescription filling is a continual test of the student's previous training in the technic of pharmaceutical manipulation, such as the making of ointments, suppositories, powders, pills, capsules, coatings for the latter, emulsions, sterilization methods, as applied to ampul filling, and the making of other sterile products, together with the many other manual operations of modern pharmacy. Also the theoretical and laboratory training in chemical reactions, and knowledge of the results following both chemical and physical combinations, are constantly demanded. In other words, it is essential, for the rounding out of dispensing training, that the student be first well grounded in the basic principles of pharmacy, both theoretical and practical, these becoming in reality a part of the elementary work in dispensing, and only when this elementary work has been covered is the student best able to understand prescription filling and to accomplish results which would be otherwise impossible.

The actual dispensing of prescriptions, therefore, assumes an important place in the last few months of a student's training, and incidentally demonstrates, as ordinary examinations rarely do, the general ability of the student, and also gives evidence of his character and ideals.

First, it is necessary that the proper equipment be provided. Utensils, weights and balances, containers, labels, wrapping paper, and all the essentials for first-class prescription filling must be at hand, and it is of the utmost importance that these be the best available, if the student is to establish high ideals for his prescription work.

Second, prescriptions must be selected for study and compounding which are typical of all forms of modern prescriptions of a routine character, and also others which are unusual and difficult, or represent incompatibilities, requiring special skill and knowledge. It is desirable to have, in addition, illustrations of Latin abbreviations and also the more common foreign types, etc., so that the training will be broad and thorough.

Third, the discipline should be strict, all work should be conducted seriously, and inferior work not countenanced or accepted. A definite plan of procedure should be adopted and enforced without exception, the penalty being the loss of all credit for the work done.

These points are emphasized because it has been found that, while some students will be willing to follow a system on request, others, and usually the majority, need the stimulation of good control and constant verification of the accuracy of their work.

* Presented in the Section on Education and Legislation, A. Ph. A., San Francisco meeting.

The routine suggested for the filling of the prescription is as follows:

1. Study the prescription as a whole, thoroughly understand it, and decide upon the method of procedure.

2. Place on the counter all of the containers of ingredients needed, in the order to be used and on the left-hand side of the balance.

3. Fill the prescription and place the product in the container, capping it, if a bottle. As each ingredient is weighed or measured, the container is placed on the right-hand side of the balance, thus serving as a check on the ingredients added, should the compounder be called away.

4. Write the main label and attach it, together with any other labels, such as "Shake well," "Copy," etc.

5. Check the prescription to an assistant, repeating the ingredients and their quantities, and also the writing on labels.

6. Price the prescription in accordance with a definite pricing schedule. The N. A. R. D. schedule is satisfactory for the teaching of a system, and it may be explained to the student that neighborhood conditions may require, at times, either an increasing or decreasing of the amounts there fixed.

7. Wrap the prescription and attach a delivery card or label.

No effort should be spared to stimulate the best grade of work throughout, and the plan which follows is offered as especially valuable.

It is an unfortunate fact that the student's viewpoint is naturally that of desire to get a little more credit than he actually deserves. He is constantly striving to show only his best side and cover up his weaknesses, and this attitude often prevents accurate rating. In order to alter this condition, a number of students are selected for each lesson to serve as assistants. There should be at least one assistant for each five students.

These assistants are taken aside, after the rest of the class are assigned the prescriptions for the day, and especially instructed in that day's work. Each of the prescriptions is studied from the several viewpoints, and then the duties of the assistants are explained.

In order that the instructor may retain an immediate supervision over all details of the class-work, the following plan is followed: The name and desk number of each student is written in a small note-book which is carried in the hand, and the date and the numbers of the prescriptions to be filled have been inserted beforehand under each name.

The instructor starts at a definite point in the laboratory and systematically passes along the desks, the assistants following. As any student completes a prescription, he asks to have it checked, at which time the instructor takes up the main points, such as the quality of the product, that the label is up to the standard, that the containers for ingredients are on the counter, etc., and, if approved, he then enters a memorandum in his note-book that that student has filled that prescription. The assistant has been standing by his side during the inspection, and if the prescription is passed, the instructor says, "Mr. Williams, Mr. Hays will check the prescription for you." Mr. Hays makes a note on the memorandum he is carrying that he is checking Prescription No. 175461, or whatever it may be, for student No. 68, which happens to be Mr. Williams's desk number. Mr. Hays, the student assistant, at once assumes a new attitude. He is to report to the instructor in a few moments on a number of points, and he becomes alert, observant, critical, and dignified. The responsibility steadies and draws out the best ability of almost every student.

It has been a rare experience to find one who did not measure up to the require-

ments, if the proper instruction has been given previously, and if it had been made clear that unfairness would bring immediate dismissal.

As soon as the checking has been completed, the assistant steps into the line for the next opportunity to check, but before he is assigned a new prescription he reports to the instructor on the one assigned to him previously. This report covers the following points:

1. Every ingredient must have been the correct one and the weight or measure that directed by the doctor.

2. The product must be creditable.

3. The label must be absolutely correct, including number, date, patient's name, directions and doctor's name.

These three points are considered the most important. They must all be approved before the prescription can receive any credit, since they are all essential.

The remaining points are then taken into consideration to determine the actual mark, and this may be "poor," "fair," "good minus," "good," and "good plus." These terms were selected because it was found that students will express values much more uniformly in terms of this character than by a numerical rating. They may afterwards be assigned a numerical value, if desirable.

The additional points noted are:

4. The correct Latin form of the written prescription.

5. The use of full official English titles in referring to the ingredients, and the use of proper terms in speaking of quantities.

6. The degree of perfection reached in finishing such products as powders, suppositories, emulsions, ampuls, capsules, pills, etc.

7. The perfection of the package, including label writing, capping of bottles, and the wrapping of bottles, boxes, etc.

It has been found possible by this plan, successfully used for about ten years, to handle a section of from sixty to seventy students in prescription filling and yet check up the details of their work with great exactness.

The entire class is stimulated to do superior work, and the assistants of each day, seeing the work of from fifteen to twenty students, discover both defects and perfections which have not impressed them before, and hundreds have testified that they returned to their own desk after this experience with advanced standards and with a determination to do better work.

ORGANIZATION.

The writer does not necessarily know more than the reader, but he must organize his facts and march truth in a phalanx.

In painting, your success hangs on your ability to organize colors and place them in the right relation to give a picture of the scene that is in your mind.

Oratory demands an orderly procession of words, phrases and sentences to present an argument that can be understood by the average person.

Music is the selection and systematization of the sounds of Nature.

Science is the organization of the common knowledge of the common people.

In Nature everything lies in the mass—materials are a mob—a man's measure is his ability to select, reject or organize.—Elbert Hubbard.

SHOULD A LIBRARY READING COURSE BE MADE A PART OF THE CURRICULUM OF SCHOOLS OF PHARMACY?*

BY ZADA M. COOPER, IOWA CITY, IA.

Though it is possible to dismiss this question with a single word, either an affirmative or a negative answer deserves some explanation, some reasons for the conclusion.

A negative answer in almost every case would be based on the belief that there is not time for such a course. The courses now being given are so important that they cannot be shortened, and it probably seems quite impossible to require more in the allotted time. If it cannot be a part of two-year courses, it is to be regretted, but its practicability in a three-year course is almost a foregone conclusion.

Leaving the time element out for the present, consideration of the value of a reading course might engage our attention. Reasons why such a course would be valuable seem almost too obvious to mention. Yet, in any argument, one should not omit valuable points even at the risk of being trite. A druggist is expected to be a man of education, he needs to realize the responsibility of his position, he ought to feel a sense of duty to his fellow-men. When he goes from college out into the world of business, he must be able to practise his profession. The very word implies a special fitness. The dictionary defines profession as "that of which one professes knowledge; the occupation to which one devotes one's self; the business which one professes to understand and to follow for subsistence."

Education is a progressive thing. It is wrong to call a man educated who has acquired a certain amount of knowledge, even though that be considerable, and who thinks he need not keep on learning. To express it another way, an individual may pass all college examinations creditably, but his education is not a completed thing. It should not stop there. It cannot stop there. If it is not a progression it must be a retrogression. Students in colleges of pharmacy after graduation and registration, like students set free from any school, are prone to quit studying, failing to realize that its continuation is the price of success. If, then, keeping up study and reading means so much, the thing that will bring that about is of almost inestimable worth. Perhaps nothing will do this better than a systematic course of collateral reading during the years in college. Some may have acquired this habit before coming to college; others, it is fair to assume, have not at all the habit of reading serious, substantial literature. The youth of high-school age is likely to indulge in frothy nothings, unless parental guidance is quite out of the ordinary. Even though in his home he has had access to the best of literature and has been guided in his choice of reading, when he enters a college of pharmacy he is still young enough to be in the formative period of his life.

Professor James has made very plain what this formative period means. He says: "The period between twenty and thirty is the critical one in the formation of intellectual and professional habits, as the period below twenty is more important for the fixing of personal habits. Already at the age of twenty-five you see the professional mannerism settling down on the young commercial traveller, on the young doctor, on the young minister, on the young counsellor-at-law. You see the little lines of cleavage running through the character, the tricks of thought, the prejudices, the ways of the 'shop,' in a word, from which the man can by-and-by no more escape than his coat-sleeve can suddenly fall into a new set of folds.

* Read before Section on Education and Legislation, A. Ph. A., San Francisco meeting.

On the whole, it is best he should not escape. It is well for the world that in most of us, by the age of thirty, the character has set like plaster, and will never soften again. The great thing, then, in all education is to make our nervous system our ally instead of our enemy. We must make automatic and habitual, as early as possible, as many useful actions as we can, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague." In the face of such facts our course is pretty definitely marked out for us. Two or three years in college may not be enough, in some cases is sure not to be enough, to fix this habit of reading so firmly that it will not be overturned afterward; but if the percentage be ever so small, it is none the less the duty of every teacher to foster that habit.

Possibly, even in the two-year courses, a course of reading, not to exceed one hour a week, could be added. One hour a week is not much—hardly enough to dignify by the title of a course—and yet it would be better than none. When so limited it possibly could not follow any definite line, but be confined to articles in current journals, these to be anything that has a bearing on pharmacy, and should include historical, biographical, and scientific articles as well as practical ones and editorials. The primary object should be the establishment of the reading habit, and we should never lose sight of it, but other results are bound to follow. Quite a store of facts would be acquired; a familiarity with various journals and a feeling of acquaintance with the men connected with them; the nature of reading matter in particular journals and where to find certain topics dealt with. It would stimulate the spirit of investigation, of searching for information instead of always asking an instructor. This sort of reading should, of course, be assigned, and would necessitate the instructor keeping up on current literature himself. It should be possible to keep some check upon a class to be sure that the readings were being conscientiously made. Just what means would bring best results it would be hard to say, and perhaps would be best left to the judgment of the instructor in charge.

Where the college course is of three years' duration such a reading course should not be so limited either in time or character. In general the same principles apply, but besides current journals there should be assigned readings arranged along definite lines and progressively if possible. These readings should include the history of pharmacy, biographies of men of the profession, scientific articles both theoretical and applied to prescription and laboratory practice, drug legislation.

There are men practising pharmacy who say they have no time to read. Not pharmacists alone but men of other professions are making this statement. Usually it is not true at all, and when it is true it ought not to be. No professional man, no business man, can afford to *not* read. In many cases where people make such statements it will be found that they are up to date on baseball news, they know the latest scandal, they are informed about the crimes of the country in all their harrowing details. If they can find time to do this sort of reading, only lack of inclination can explain their not reading pharmaceutical literature. If business really keeps them so busy that they cannot read, then there is mismanagement somewhere. Some part of the work should be turned over to assistants in order that proprietors may read; or the clerk should be delegated to scan the journals and mark the important items. Reading is a necessity, looked at from the standpoint of dollars and cents, if from no other. Twentieth-century competition is too keen to make it safe not to know what others are doing. Perhaps this seems beside the mark when considering courses of study for students, but students of to-day are the practising pharmacists of to-morrow. We should reduce to a minimum the number of men who, when they walk out of college with diplomas under their

arms, relegate their books to the attic and become fossilized pharmacists who never buy a new book or subscribe for a journal. It is not enough to tell them to read; always with some students that will prove wasted breath. A requirement carried out consistently for two or three years will teach the habit of reading to some who never had it and establish it more firmly in those who had learned it before coming to college. Of such it will come to be true that "Silently, between all the details of business, the power of judging will have built itself as a possession that will never pass away."

ABSTRACT OF DISCUSSION.

Prof. H. V. Arny: Mr. Chairman, this is one of the most practical papers I have listened to in an educational section for a long time. I think if the colleges would follow out this idea it would mean that we would have an entirely different class of pharmacists in a comparatively few years. I have students come to me and say, "I am not going to drop my education, I am going on with it." And I would say, "What are you going to do?" and the answer would be, "I am going to get some good books." I just smiled, because generally I thought the man was trying to say something to the professor that he would like to hear. I have said to them, "You will not do it; you men are occupied with other things. You get the time to spare for other things, but that will not appeal to you. There is just one way you can keep it up, and that is by taking some good journals and reading them. It is education, advanced education, and it will keep you up to date, and that is the only way you will keep up your education."

I have never seen the time when I have changed that opinion. I believe that the average pharmacist would gain much if he would pick out a few journals such as appeal to him, to his own character, and read them, thereby really getting an additional education.

If the college can acquaint the student with the different classes of pharmaceutical literature, tell them what they are, what they give, then you will get into the profession quite a different class of pharmacists within a few years, and it would be a very great improvement.

Prof. J. U. Lloyd: It seems to me that the young mind should be taught that schooling does not end when the pharmacy college course is completed; that it is then only that the education begins, that real live work begins. I personally am in favor of more education and not so much schooling, having had that experience myself, but I believe that will enable the student to face life's opportunities much better prepared. For instance, there is the phase of searching through literature. A young man will start out of college with the fact confronting him that the teachers have devoted their lives to the study of problems that have been brought before them, and only fragments of what the teachers could bring before them have really been presented. I think that the opportunity of a lifetime to the young man lies in the fact that he looks into the inside for the real things; that he will remember that the outside envelops the inside always. To think that the outside is the great side of any calling is wrong, for when he leaves the college he must remember that this is a work that he has gone into for a lifetime; that it is his great opportunity, and that it should be continued from the day he steps out of the college. I do not mean to deprecate the benefit of the college and the teachers that he has had there, but I do know this: one of my greatest pleasures has come to me in the searching for something that I could not find, in the wading through publications to find something that I knew existed somewhere and must be in print; and that much of the education, empirical education, that came to me has been that which came to me in side opportunities, in the searching for something I never found. Turning the pages over, by the title, in the reading of that which you would not read if you had not been searching for something, and one page after another is turned and you look at the index, and something strikes your eyes and you say, "That isn't what I am after," but you read it. And again you turn the page and read and you become educated; you get something you had not thought about, and about which you had no one to inform you; you study the literature that the world has given us. I commend highly this paper. I feel that such opportunities as those I mentioned here are opportunities that come to the young man; and that baseball will take a second place.

SECTION ON COMMERCIAL INTERESTS

A LITTLE TALK ON CIGARS AS A SIDE LINE.*

BY SOL. A. ECKSTEIN.

As a side line in drug stores, cigars are not only a clean but a profitable adjunct. If properly handled and well kept, you can feel sure they will yield a good return on the investment. There is practically no limit to what the business of your cigar department can be built up to, provided you adopt modern and up-to-date methods in conducting this branch of your business. No better illustration can be offered than the success enjoyed by the modern cigar stores. Why not study their methods, profit by observing their way of doing business? Incorporate as many features as you can of your own, all of which will enable you to compete on more even terms, with the ultimate satisfaction of seeing your sales increase, not alone in the cigar line, but indirectly in other lines, for the more popular you make any branch of your business, the more certain will it extend beneficially to other lines.

In the first place, your stock should be kept in an air-tight vault, preferably one with a cement floor, which tends to keep the cigars in a good condition. A humidity of between 70° and 75° should be maintained and proper moisture allowed. This can be done by installing in your vault one of the humidors which is run by electricity and dispels an equal moisture throughout the vault. It should be run at intervals about one hour at a time, and in this manner will keep the cigars in fine shape and your customers will soon realize that your stock is kept right. Of course, the size of the vault depends on the amount of stock carried. We have in our store a vault 16 feet by 24 feet, encased in double glass, cement floor and doors that shut air-tight. This vault has a capacity of 100,000 cigars. There is installed a humidor which, as stated before, is kept going during the dry weather and keeps the vault just right for moisture. Whenever the weather is damp we do not run this, but have instead a small gas stove which is run long enough to take out all superfluous moisture. The success of the cigar business depends largely on the way stock is kept, and if kept right there need never be any dead stock or dried-up cigars that are unsalable. Where the stock is small use a zinc-lined cedar chest of dimensions large enough to hold the stock, and at the same time leave space for moisteners, or a receptacle for a large sponge, which can from time to time be saturated with water.

The most important and necessary requirement is to keep in stock and offer for sale the best quality of cigars you can get and such brands as are popular and most apt to be called for. Select certain well-known brands among the five-cent, ten-cent, and two-for-a-quarter sizes and try to give your customer brands he knows about and which you can be sure will give satisfaction. Do not fill your case up with too many different brands, necessitating your customer's looking from one end of your showcase to another until he finds the brand he is looking for. As much as possible arrange your case with the five-cent brands by themselves, the tens by themselves, and the two-for-a-quarter together in one section.

Keep your showcase well filled, and do not allow any boxes with three, four, or five cigars in, to remain; take them out and replace with a full box. We

* Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

usually close out the last row in the box to some one at a discount, for I find that the average customer is skeptical and will rarely select any cigars where there are only a few in the box. As one customer expressed himself to me, saying, "I don't want these, they have been picked over," so many have the same opinion. I have also noticed that a full box is rarely bought from until some have been sold out of it, and I generally make an effort to sell some out of a fresh box to get them started. I have had a box unbroken in the case in instances sometimes a week, and I wondered why. I asked one of my regular customers the reason, and he expressed himself, saying, "Why, they can't be good, or else some one would have smoked some out of the box long before." So it is well to either break into the box and smoke one or two yourself or give them to some one. You'll find the balance will sell much faster.

The selection of shades in cigars is an important factor, some preferring a dark oily wrapper, others the mildest kind of shade, and you must study your customers' likes and cater to them in this particular and you will hold them as steady patrons. Cigars are marked according to the color of the wrappers in Spanish terms and are as follows:

Claro or (C. C. C. abbreviated) means a very light shade.

Colorado Claro (C. C.) means a light red, a trifle darker than Claro.

Colorado (C.) designates a medium brown shade and is one that is mostly called for.

Colorado Maduro (C. M.), a much darker, mature, and ripe color.

Maduro (M.) means ripe and is the darkest shade usually sold, although I have in years gone by seen a very black, heavy-looking wrapper marked Oscuro, but this is rare and I do not remember seeing any cigar of late years of that shade. It is an erroneous idea among smokers that the Claro wrapped cigars should of necessity, on account of the light wrapper, be very mild. This is not always the case, as all cigars are sorted and packed in boxes by color of wrappers for the purpose of uniform appearance. However, the effect on the mind has a great deal to do with it, and we have customers who insist on a certain color marking in order to satisfy them that that cigar just suits their taste. Never dispute or argue with a customer, but favor him in his notions, and in nearly every case he will be better satisfied. Never try to dissuade a customer from taking the cigar he asks for, always hand out what is called for, but when he leaves the selection to you give him the best you have in the house and you will be sure to have him come back. I have in many cases guaranteed the box I have sold, telling the smoker to smoke five or six, and if they are not as good as I told him he could return the balance and select a full box of another brand, and I have never had a box returned where so guaranteed. It inspires the customer with confidence in the article, and that helps a great deal toward satisfying him.

Another great help to the cigar business is the window display. An attractive cigar display in your window will materially increase your business. Once a week, for instance, a certain popular brand can be displayed at a certain price for that day, say, for instance, a five-cent brand in boxes of 25, which retails at $1 per box, can be featured at 89 cents, special, and will attract many customers who after smoking these special-price boxes will call for that brand later; but, above all, they must be a quality cigar to bring them back for more.

Always be pleasant and receive your customers with a smile, as cordial treatment and giving good value for the money will make cigars one of the most profitable side lines in the drug store. Watch what your competitors are doing, improve on their methods, lose no opportunities when away from home to get new ideas, new methods, and keep pounding away until you have made your cigar department a success in name and in fame, as well as financially a winner.

ABSTRACT OF DISCUSSION.

Mr. Fred I. Lackenbach: The paper to me is rather an interesting one. I am sorry that Mr. Berger is not here to read his paper. Mr. Berger has issued a little book telling the people how to sell cigars, and there is one little trick in it that is very, very good. There is a comic picture. It says the cigar is like booze, and that by taking a moistener and adding a little sherry wine to it, it increases the flavor and increases the sale.

A broken box that carries three or four cigars will hardly ever sell cigars. It is again true that a smoker will not take cigars from a full box. Why it is I don't know. I have laughed about it several times. We keep the case full and also break into a full box and take out some and smoke them ourselves. The psychology of that thing is rather peculiar. You would not think it true that a strong-minded man will not buy a cigar out of a full box. Again, the thought comes, have you ever noticed the window displays of the United Cigar Company? That display would be good for any kind of merchandising. They have a frame wherein which the literature can be changed; they use the same kind of frame and keep the window full. It is an easy window to dress. Personally I am attempting the same thing in my place, and I think it will be a success. It does not take very much stock to fill a window, and the window is very attractive. I try to get all the good out of these meetings I can, and I go from one place to another and see if I cannot pick up something. I have done it from New York to California, and all over the country I have been taking items for my own use.

Again, I cannot agree with cutting prices. I hold up the prices on all the merchandise I carry. That is the trouble with the pharmacist. He puts himself and his services and his goods to the public too cheaply. It does not sell any more goods to sell six five-cent cigars for a quarter. If you give the patron better value and sell him five for a quarter, he will buy just as many of them, and at the end of the year you will find that your profits are greater.

I do not believe in carrying large stocks of cigars. I think the turn-over is where you win. I think that is another mistake. I am going to speak about keeping up stock. It seems rather a source of pride to the average pharmacist that he has a very large stock. I think that is poor business. I am in the store very little and my head clerk does the buying. I tell him, "Don't buy too much stock, because it is the turn-over where you make your money." If you do a business of $25,000 a year, which seems to me to be the average business, as was read in the paper yesterday—it may be more, but we will say they do $25,000 a year of business, and supposing that is done on a $5000 stock, how much more money will that man have at the end of the year if he carried a $25,000 stock?

We who are in the cities are nearer the source of supply and it is absolutely unnecessary to carry more stock than is needed from day to day, and I have gone through the experience of filling up my place with a lot of stuff at 5 percent discount and having it so long that the discount is eaten up at the end of the year, and 5 percent off in 30 days and 60 days—take your pencil and figure out where you come out at the end of the year. It looks good, yes, 10 off looks fine. But when the 12 months are up, that does not pay. It is better to discount your bills 1 percent, as we do here, and keep the stock moving.

SELLING YOUR OWN PREPARATIONS.*

BY F. W. CONNOLLY.

Salesmanship is such an important factor in the consideration of the subject before us, " Your own non-secrets as compared with other lines," that I shall ask your indulgence for one or two illustrations before concluding my paper.

Like all questions, there are two sides to it, each possessing its advantages.

The ready-made line economizes time and original investment, also whatever advertising may accrue to them by being handled in other stores.

These apparent advantages are offset by a good profit to the manufacturer; your store and energy devoted to building a business for the aforesaid manufacturer, and your protection is insured only by a bond or an agreement, with damages if broken.

On the other hand, our own preparations afford an opportunity for individuality and excellence, both of which should be improved to the fullest extent. By so doing we are constantly building a reputation for ourselves, instead of developing an adversary to bind us hand and foot at some subsequent period.

The perfecting of a preparation of our own is a delight to the man who loves his business. A line of such good preparations assists our business directly and indirectly.

Our initial investment is greater, but we will save from one hundred to two hundred percent on manufacturers' prices.

The store can recommend with more confidence goods which they know all about than they can goods which can be changed at the will of the manufacturer.

Have all preparations bearing your name of such high efficiency that it will be difficult to substitute against them.

Have the appearance of both the preparation and the package or container such as will appeal to a customer.

Your guarantee of satisfaction should enable you to make sales in most instances.

Have several preparations of the good sellers. We have a " Little Folks' Cough Syrup " for children, and four others, besides our emulsions; some contain both chloroform and an opiate, others have neither of the above, and we try to assist a customer to select from our line, instead of comparing our one kind *versus* the one advertised in the newspaper. Our smallest bottle, which we guarantee, sells for fifty cents.

The suggestion " take both " often sells our preparation as well as the advertised article and has the advantage of the customer having what he went after, and if you recommend trying yours first and if it proves effective tell the customer that you will be glad to return the price paid for the other (which you probably sold at the wholesale price).

We sold both toothache drops and toothache gum to so many persons that we were ashamed of ourselves, as we knew that either one would probably relieve the pain, so we prepared a toothache jelly, two drachms to sell for twenty-five cents, and it frequently sells against the ten-cent drops or gum.

Considerable business can be done by having one preparation where there is

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Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

a limited demand, such as a canker cure for thirty-five cents, a gargle for the same price, a black-eye remedy, etc.

In ointments, however, we have three of our own adapted for various conditions.

It is pleasant and profitable to sell your own goods.

It is the process which develops a Hudnut and Grove and many others.

Note the long list of drug preparations which require to be physiologically tested.

The Stevens bill will help the advertised goods, as druggists will not be so particular to replace them when they show a profit.

INEFFICIENT EFFICIENCY.

Efficiency experts are telling manufacturers, merchants and railroad operators that they display business efficiency of only fifty to seventy-five percent. Their criticisms are absurd in the light of the experience of New York City. What manufacturer or contractor, though only fifty percent efficient in his methods, would neglect to provide for the prompt payment of casual labor? The city of New York has been bossed for several years by the most noted efficiency experts in the country, but they have been unable to devise a means of paying casual laborers for shovelling snow.

It is always a source of wonder why professors of economics and other efficiency experts do not become rich, but the man who writes books and magazine articles on making money seldom makes much. When an efficiency expert tries to run a factory he usually strangles it with red tape. He tries to account for everything and it usually costs more to prevent waste than the loss would amount to in practice. Efficiency experts are useful in their proper sphere. An outsider often sees leaks which those who have fallen into a rut do not suspect.

Every business man whose affairs are complicated or large should periodically have his plant, his stock and his system inspected by an outsider. The bank with which he does business often has a man well fitted to advise. He should also have his books audited regularly by a skilled accountant. Neither the accountant nor the efficiency expert is likely to possess the broad view and other qualities that go to make a man successful in business, but they can help the business man just as good tools assist a mechanic. It is an old saying that successful men make mistakes and those who do not make any keep books for them. The efficiency expert or trained accountant holds up his hands in horror when the boss puts money in his pocket to pay off casual labor before the accounts are audited. New York City cannot clean its streets of snow because its efficiency experts insist on paying casual labor after auditing the pay roll—and after the men have starved.—*New York Commercial.*

AN EIGHT-BARRELLED MOTH-BALL SALE.*

BY WILLIAM J. LOWRY, JR.

The business was old, the boss was older, and the building was older still; the store was cold, the boss was colder, and the weather was colder still.

The business had been founded about fifty-five years back and considerable conservativeness had accumulated in the interim, so on this cold morning in March, when the signs of spring betokened the approaching need of thinner clothes and the consequent shedding of the thicker ones, their necessary protection from the attacks of moths suggested taking stock of the preservatives used for that purpose.

Naphthalene in the form of moulded balls resembling the old cough remedy Sal Prunelle in appearance, but with the difference that " Every little moth ball has an odor all its own," had been coming into use as a cheap substitute for camphor and in a good many places was selling quite well.

The stock consisted of a few pounds left over from the last season, and the question as to how much to buy was being discussed.

The senior member of the firm objected to handling them at all, mainly on account of the odor, and the season's selling usually consisted of one dozen one-pound wrapped and double-labelled boxes bought from the jobber at seventy-five cents a dozen and sold at ten cents a box.

The other druggists were selling them at five cents for a twelve-ounce carton, and the small department stores were selling them in one-pound manila bags at five cents a pound; bargain day beginning only four and seven-eighths, or, at the lowest, four and three-quarter cents.

Towards the end of the previous season the public positively refused to pay ten cents a pound for a box when they could go down the street and get them for five cents in pound bags. All moth balls looked alike to patrons, and even old customers began to reason that if moth balls cost double, other things might also cost in the same proportion; so a splurge was made and a hundred-pound bulk lot was purchased in order to be able to sell them at five cents a pound.

Well do I remember the box in which they came, for I had to open it, and the villain (he couldn't have been a gentleman) who nailed it up had used about a thousand (count not guaranteed) spikes in sealing it against inspection and almost against opening, and they were used impartially, without fear or favor, on top, bottom, sides, and ends of that coffin-like box.

How I wished it was his casket, for I skinned my knuckles, ruffled my temper, tore my finger-nails, broke the hatchet and hammer handles, smashed at least one of the commandments, chipped the chisel, and littered the floor with nails, splinters, and cuticle, and dampened it with perspiration and gore!

We wrote to the jobber and told him of those nails, told him of their net weight, measure and numerical count and probable cost, told him of their assorted sizes, told him of the approximate cost of the time consumed in driving them in, told him of my afflictions, told him of my peeved disposition, and told him of a good many other things which I have since forgotten, and finally told him that if we were not to sever diplomatic relations he'd have to " fire " the scoundrel who nailed up that box.

It was late in the season, yet we sold practically all of those balls at five cents a pound.

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On this particular morning we were discussing the advisability of anticipating the " Buy a bale of cotton " movement by buying a barrel of moth balls.

We decided to buy a barrel, and we bought it and we sold it; we bought another and we sold it; we bought another and we sold it, and the senior member forgot about his dislike of the odor of naphthalene.

The next season he gave his consent to buying not one or two or three, but five barrels, and we sold them.

In reviewing the sale of the three barrels, he said it wasn't the balls, it wasn't the bags, it wasn't the display so much that sold them, but it was William's signs.

Looking backwards, I'm sure he was very nearly right, for although the balls, the bags, and the display were absolutely necessary, yet I feel that the signs turned the trick.

We had a monopoly of the moth-ball business of that section of the city. The people must have had a large supply of habiliments which needed preserving, or they must have used the balls for other purposes.

There were rumors that the kids used them for marbles after cutting off the ends, and that the girls used them for necklaces after threading them with the pink string with which the packages were wrapped, and there is one instance, for which I can vouch, where an old colored woman used three of them at one time for cream almonds, but quickly spat them out and said, " Never again will I taste something unless I am invited."

The boss was the treasurer of the church and one of the deacons, and what he lacked in stature, *embonpoint,* and avoirdupois he made up in fairness and squareness and goodness, and he decided that we would not pay the printer a half cent for his twelve-ounce capacity cartons, but would buy paper parchment bags and give the customer a full pound for his nickel.

So we made a nice display of the white packages and loose balls, and, as the window had glass doors which could be closed tightly, there was very little odor in the store.

We then put in my sign, which read:

16 Ounces Make One Pound.
Moth Balls,
5 Cents a Pound.

In a short time we sold our barrel. The fact that we gave a full pound, which cost us no more than the twelve-ounce cartons cost others, made us customers, yet it somewhat riled the brother druggists, because they had loaded up on cartons and did not want to sacrifice them and use bags. Their sentiment was voiced by the man Friday who came from one for two ounces of " Peafowl's Fluorides " to make up a shortage on a prescription and said, " You all ain't playing fair about that there sign with 16 ounces to the pound on it."

In changing the display to another window, around the corner, a sign was used which read:

Moth Balls Are Selling Fast,
Get a Pound While They Last.
Moth Balls—5 Cents a Pound.

On different occasions other signs were used. One especially caused a good many smiles and helped the sales. In fact, we always tried to wrap up a smile with each sale of goods, and, while no burlesque or buffoonery was countenanced, yet a good clean laugh or a pleasant smile helped and paid.

This one read:

Did You Ever Hear a Moth Bawl?
Moth Balls Here at 5 Cents a Pound.

Another read:

We've Lots of Calls
For These Moth Balls,
5 Cents a Pound.

Another read:

Moth Balls Fresh and Moth Balls White,
You Get a Full Pound Here All Right.
16 Ounces for 5 Cents.

The signs were written at the store in large, legible capital letters, and only one or at most two were used at a time, and the display was changed every week, the window stock sold when taken out, and new lots put in the windows on the other street.

The sales were increased from twelve pounds to a ton of two thousand pounds a season, and the cost of two five-cent bags was the same as that of one ten-cent box, the profits being in the same proportion.

More people were brought into the store and the general business helped; especially did our sales of kindred lines increase. We sold more camphor than ever before, because the moth balls suggested that to those who did not use them. We also sold quantities of cedar chips, tar paper, fly paper, fly killers, insect powder, insect powder guns, and even dog soap.

The same tactics were followed along other lines of merchandise and results always followed, so our old, looking-backward song:

Moth balls were selling slow,
In fact, the stock was never low,

was changed to our looking-forward song:

Moth balls are selling fast,
We hardly think our stock will last.

The sign that caused us to buy insect powder guns in 5-gross lots instead of by dozens read:

GREAT GUNS
10 Cents.

THE POWER OF PUBLICITY.

One of the speakers at the recent Rochester convention of the National Public Health Association paid the following remarkable tribute to "printers' ink," as a factor in the prevention and cure of disease:

"Printers' ink should be included in the pharmacopœia. Wisely used, it prevents tuberculosis and builds hospitals to cure it. Thousands of babies are saved every year by its educational force. It is the only universal agency for the treatment of diseases in the community at large. You may cure the individual in the sickroom; you must treat the community through the newspapers. As soon as you begin to use print for any public or educational purpose, your opponents will dub you an 'agitator.' But it's a good thing to be. Every advertiser is an agitator, whether he agitates the public mind in favor of pickles or public health. Don't let the term bother you. It's really a compliment. Use printers' ink in large quantities, and don't be afraid to pay for it."

CONTRIBUTED AND SELECTED

PHARMACOPŒIAL STANDARDS FOR WHISKY AND BRANDY.

BY GEORGE M. BERINGER, A.M., PH.M.

The resolutions adopted by the various associations of druggists in favor of the retention of standards for whisky and brandy in the United States Pharmacopœia indicate that this is considered one of the topics in which pharmacists are especially interested.

The question of proper pharmacopœial standards for these distilled liquors has been unnecessarily beclouded by other questions that have been introduced in the discussion.

As the member of the Committee of Revision to whom was referred the subject of standards for whisky and brandy, I am of the opinion that there should be presented, for the benefit of the interests engaged in the discussion, a review of the studies this assignment entailed. Hence I have concluded to publish an abstract of the "Report of the Referee on Whisky and Brandy."

The preparation of a satisfactory monograph on whisky is beset with peculiar difficulties. The referee admits that it has been one of the most perplexing of the many pharmacopœial problems with which he has been personally associated.

Considerable of the literature on the subject has been written in behalf of trade interests engaged in a strenuous effort to obtain commercial advantages, and is so tinctured with partisanship as to becloud the scientific facts necessary for a pharmacopœial standard. The Pharmacopœia *must not become entangled in any such trade controversies.*

The referee believes that it is his duty to present a report that shall be based upon an impartial study of the subject and upon the actual data obtained by examination of commercial products of satisfactory quality. What is needed is a definition, description, and tests that shall correctly define, cover, and include any properly produced whisky that may be dispensed when "Spiritus Frumenti" is *prescribed for medical purposes,* irrespective of which cereals were used in the mash or what form of apparatus was used in the distillation, or the state or country where it was produced. Such a standard, to be satisfactory, must be based upon such facts as are fully established, and not upon academic theories or preconceived views.

The following general observations are initial propositions which have a bearing on this question. These must be given due consideration as having a decided influence on the draft of a pharmacopœial standard. They further serve to illustrate some of the difficulties of the problem.

Whisky is of such a complex chemical composition that it is difficult to compass it by the ordinary rules of procedure of the Pharmacopœia. Approximately, about 99 percent of whisky is a mixture of ethyl alcohol and water which our accepted methods enable us to determine with sufficient accuracy. The remaining 1 percent or less consists of non-volatile extractives and numerous volatile constituents of complex and more or less unknown composition and present in ever-varying proportions. The presence of these volatile substances, which in the more recent literature have been named "congeners," in at least a substantial amount is essential to whisky.

The causes of congeneric variation are numerous. The various mixtures and quality of the grains used and the proportion of diastase in the mash, the character of the yeast, the time and temperature of the fermentation, the method of distillation, the distilling apparatus, and even the atmospheric conditions, are factors permitting of innumerable changes and consequently innumerable variations in the amount and character of the congeners present in the product.

It is difficult to gauge the degree to which rectification and compounding have been carried on or to what extent these should be restricted. For several centuries the trend of the manufacture of whisky has been toward either the masking of or the elimination of a portion of the congeners. The earlier attempts to render distilled spirits potable were efforts to overcome or drown out the obnoxious odor and taste in the crude distillates of those days by the addition of aromatic and sweetening flavorings in relatively large amounts.

These attempts at masking were soon supplanted by improved methods of manufacture that aimed at the elimination of a large portion of the congeners produced. The first step to be applied in the process of elimination was fractionating the distillate by which the aldehydes and " fusel oil " congeners were largely separated in the rejected fractions. In the whisky industry, as in other industries, marked progress has taken place in the character of apparatus and machinery employed. In modern distilleries the improved column still has generally replaced the older types of stills.

The second step in the process of elimination of " fusel oil " congeners is rectification. Originally this was carried on as a distinct industry in an establishment entirely separate from the distillery. Rectification originally consisted in passing the grain distillates through a series of leaching tubs containing charcoal. Since 1872, the government has sanctioned, by congressional enactment, the use of improved apparatus by which the rectification may be carried on at the distillery as a part of the process of manufacture, thus combining in one completed operation both the distillation and the rectification.

During all of these years the effort has been to eliminate as much of the higher alcohols, " fusel oil," as possible. The tendency of the manufacture of whisky has been gradually but surely toward the production of a " lighter " or milder type of distilled spirit from grain, and the taste of the public has been cultivated in that direction.

The taste of the public has likewise been cultivated toward the modified flavors produced by " blending " in which the art of the compounder is exhibited. It is estimated that probably 90 percent or more of the whisky consumed is blended or mixed grain distillates.

In its standard the United States Pharmacopœia must necessarily recognize the changes that have occurred in the character of the product known as whisky because of improved apparatus and processes, changes in trade conditions, and the demands of cultured palates. Its standard must of necessity define what is actually in the market and what is used in medical practice, and not what was originally known as whisky or the primitive " usquebaugh."

It is likewise difficult to gauge the changes due to the aging or maturing of whisky and to determine the proper minimum age limit. It may be considered as universally conceded that the palatability of whisky is improved, if not mainly due, to changes which occur during the period of maturing or storing. To what modification of its components or to the production of which " secondary products " this improvement is due cannot be definitely stated.

The changes that take place during the aging are, as yet, but imperfectly

known. However, we do know something of these and of their effect on the potability of the whisky. The distilled spirit dissolves out of the wood a small amount of tannin, wood extractive, and color, and acquires a distinct woody flavor, detectable by both taste and smell. The color and flavor are materially influenced by the extent of the charring of the interior of the barrel, and the wood extractive is increased by elevating the temperature, by agitating the barrels, and by extending the period of storage. In whisky that has been matured in oak barrels the woody flavor is not only distinctly perceptible in the liquid but persists in the residue left on evaporating a portion on the water-bath. The tannin, wood extractive, and coloring thus acquired are undoubtedly *additions* to the distilled spirit, but by reason of the many years that this practice of storing in wood has been carried on, these have become considered as *essential ingredients*, and the associated woody flavor is accepted as part of the composite flavor of whisky.

The percentage of acid present in whisky at the time of its distillation is variable, depending on the extent to which the fermentation has been carried. During the period of storage the acidity is increased for several years by the gradual oxidation of a portion of the alcohol, and thereafter appears to remain stationary. Esterification is likewise gradually going on during the maturing period, and the acid consumed in this process probably compensates that which is continuously formed by oxidation. The esters formed play an important part in modifying the odor and taste of the product.

Chemists estimate the acids present as acetic acid, and the esters as acetic ether. Nevertheless, it is well known that other acids are present in small amounts and also that a series of higher alcohols, collectively spoken of as " fusel oil," are present in relatively minute quantities, and that these are subject to the same chemical changes as are the acetic acid and the ethyl alcohol; consequently, the production of a number of compound ethers must be conceded. These acids and esters aid materially in rendering the spirit potable by adding the flavor or bouquet thereto, and, although strictly *additions,* they are considered as *essential ingredients* of whisky.

The Federal laws relating to distilled spirits have been enacted primarily for the purpose of collecting the tax thereon, and only incidentally do they consider the question of standards. From the viewpoint of the revenue collector, the tendency would be to encourage the production and to broaden the definition of whisky so as to include the widest range of alcoholic distillates that could be used under that title. The pharmacopœial viewpoint is the necessity of fixing a reasonable and practical standard of purity and quality for a product used for medical purposes.

For beverage purposes a wider latitude could with safety be permitted than would be permissible in a standard for a medicinal article. The requirements for whisky as a medicine should be more restricted and exacting, as in such use there is constantly present the necessity for estimating its pharmacodynamic action. With beverages the Pharmacopœia is not concerned, nor does its authority contemplate the control of standards for such purposes. For this reason there should be incorporated in the monographs on whisky and brandy a statement that the standards are applicable to these products when prescribed for medical use.

The pharmacopœial standard should be correct, reasonable, and practical, and should work no unnecessary hardship on the producer, and should protect the pharmacists from uncalled-for prosecutions. The manufacture of whisky is a legalized industry commonly conducted on a very large scale and with enormous investments. The quantity of whisky consumed as a medicine bears but a very small ratio to the total production. The pharmacist is limited in his source of

supply, and, even under the most favorable conditions, he can have little or no influence on the quality of the commercial product.

The duty of the Pharmacopœia is to supply a proper standard that will not unnecessarily restrict the pharmacist's supplies and will enable him to form a correct judgment of the purity and quality so as to protect the dealer and consumer from deception. "Such a standard should be sufficiently liberal to enable compliance without becoming burdensome, but at the same time constitute a safeguard against the use (medically) of the compounds commonly sold under the name of whisky."

Accepting the monograph on Spiritus Frumenti of the U. S. P. VIII as the basis for a revised monograph for the U. S. P. IX, a critical examination of the language and statements contained in the article on whisky now official appears to be imperative. Equally important is the confirmation of these statements by the results of examinations of commercial products. Attached to this report is a synopsis of recent examinations of nearly two-score samples of commercial whiskies. This serves to illustrate some of the criticisms presented.

> THE TITLE.—"Spiritus Frumenti," literally "spirit of grain," is appropriate and should be retained.
>
> THE DEFINITION.—"An alcoholic liquid obtained by the distillation of the mash of fermented grain—such as Indian corn, rye, wheat, and barley, or their mixtures."

This is subject to several criticisms. Whisky must be *potable,* and "an alcoholic liquid obtained by distillation" as prescribed is not the whisky contemplated until rendered *potable* by reduction to the proper alcoholic content and matured, and this distinction should properly be included in the definition.

As it is the mash that is fermented, the wording should be changed from "mash of fermented grain" to "*fermented mash of——*"

The minimum period of aging should be a *requirement* of the definition and *not a recommendation* included in the description, and accompanying such a statement in the definition should be added such restrictions on the method of aging as it may be deemed wise to officially require.

> THE DESCRIPTION.—"An amber-colored liquid, having a distinctive odor and taste, and a slightly acid reaction."

The statement as to color is probably as clear and descriptive as it can be made, as the varying depths of color or shades of amber permissible cannot be described, and colorless distillates are excluded.

The statement here as to acidity is likewise accepted.

The statement, however, regarding odor and taste is subject to the criticism of being too general and too indefinite a description of the odor and taste of whisky. It might be claimed that the "distinctive odor and taste" is the distinctive odor and taste of ethyl alcohol, which is the predominating ingredient. I would recommend that this be modified to read—"having the odor and taste of diluted alcohol modified by flavors derived from the grain, extractives from the wood, and substances naturally formed during the storage."

> "Its specific gravity should be not more than 0.945 nor less than 0.924 at 15.6° C. (60° F.), corresponding, approximately, to an alcoholic strength of 37 to 47.5 percent by weight or 44 to 55 percent by volume of absolute alcohol."

This statement follows the customary method of determining the alcoholic content of such distilled spirits by taking the specific gravity of the liquid by any of the accepted ways and calculating from the alcohol table the percentage of alcohol present. This ignores the variation introduced by the content of solids and the modifying influences of the other volatile substances present. This error is certainly very slight and, with the restrictions on the solids proposed, will be reduced to a minimum that is negligible, and, as the method has the sanction of governmental and business usage, it can be continued.

The permissible alcoholic content, " 44 to 55 percent by volume," is entirely too wide a range for a medicinal product. A whisky of 110 proof is entirely too strong for consumption, and verges on the border of being non-potable on that account. A number of the samples examined (notably Nos. 13, 14, 15, and 16) were stored goods not yet reduced, and the taste of these showed distinctly the undesirability of such high alcoholic content. The bulk of the whisky is sold to the consumer at 90 to 100 proof (45 to 50 percent alcohol by volume), and the pharmacopœial range of alcohol content should not vary greatly therefrom. From 45 to 51 percent would be a proper limitation.

The present method of stating gravity at the temperature of 15.6° C. is continued in the monograph submitted, although the preference of the referee would be to give such at the official normal temperature.

> TESTS.—" If 100 Cc. of whisky be very slowly evaporated in a tared dish on a water-bath, the last portions volatilized should not have a harsh or disagreeable odor (absence of more than a trace of *fusel oil* from grain); and the residue, when dried at 100° C. (212° F.), should not weigh more than 0.5 Gm. This residue should have no sweet or distinctly spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*), and it should almost completely dissolve in 10 Cc. of cold water, forming a solution which is colored not deeper than light green by a few drops of ferric chloride T. S. diluted with 10 volumes of water (absence of more than traces of *oak tannin* from casks)."

This paragraph contains some misleading statements and merits the most critical scrutiny. The first statement therein is given as a test for the absence of more than traces of fusel oil. This is only one of the organoleptic tests that have been proposed for detecting fusel oil. It is comparable with the evaporation of a portion of the spirits by rubbing on the palm of the hand or evaporation on a piece of bibulous paper, and is unscientific and insufficient for the purpose proposed. Relatively large amounts of fusel oil would escape detection by such a crude method.

If only a qualitative method is to be adopted for the detection of excess of fusel oil, there are several tests which are preferable; for example, either of the following:

1. 20 Cc. of the sample mixed with 50 Cc. of distilled water in an Erlenmeyer flask and heated to 25° C., the contents then violently shaken, and the odor and taste noted.

2. Shake 10 Cc. of the sample with 20 Cc. of water and 10 Cc. of ether. Allow the mixture to stand, separate the ether layer, and evaporate this on a watch crystal. No odor of " fusel oil " should remain after the ether has evaporated.

If it is desirable to retain only one qualitative test for this purpose, I would prefer the latter.

In the Eighth Revision of the United States Pharmacopœia the residue from

100 Cc. of whisky was increased from 0.25 Gm. to 0.5 Gm. The reason for this change is not evident. Properly-made whiskies, even after long storage in wood, do not yield residues approaching this maximum. Blended whiskies and compounded whiskies, to which excesses of coloring and flavoring have been added, may yield a residue of 0.5 Gm. or even greater.

Sample No. 13, which was stored more than six years in wood, yielded only 0.260 Gm., and if reduced to 50 percent alcoholic strength the residue would have fallen below 0.250 Gm.

Sample No. 26, after six years' storing, residue 0.210 Gm.

Sample No. 6, seven years old, residue 0.233 Gm.

Of the blended whiskies, which contained added coloring and flavoring, the residues frequently exceeded 0.5 Gm. This is seen in samples Nos. 19, 20, and 33.

With entire safety the residue from 100 Cc. of whisky can be reduced to 0.3 Gm. or even to the old standard of 0.25 Gm. Any whisky exceeding this limit would show the presence of added foreign materials.

The residue also gives us valuable information as to the character of the whisky. In a whisky consisting entirely of grain distillates aged in wood the residue is brown in color, dry, and scattered over the bottom of the evaporating dish in leaf-like patterns or spotted deposits. Whiskies containing added caramel coloring leave a more or less shining deep-brown residue. If only a small amount of caramel is added it is insufficient to entirely destroy the characteristic appearance of the residue described above, and the residue exhibits in spots the characteristics of both kinds of coloring. If the coloring is entirely caramel, or if the caramel is in excess, then the residue is in the form of a shining, smooth solid extract, more or less pasty and sweet, especially if prune juice or similar material has been used as a flavoring.

The requirement that the "residue should have no sweet or distinctly spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*)" is correct and should be retained.

The next requirement, however, that "it should almost completely dissolve in 10 Cc. of cold water," is not correct. In compounded whiskies, in which the residue is composed largely of added coloring and flavoring, the residue is practically entirely soluble. However, in whiskies in which the residue is due to material absorbed from the wood during storage this is not true. A reference to the appended report will show that in those whiskies which are compounded the insoluble residue is very scant. In the examination of these samples the insoluble portion of the residue was determined in a number of cases. The residue left on evaporation was thoroughly rubbed down with 20 Cc. of distilled water, filtered, and the dish and filter washed with an additional 5 Cc. of water. In a number of these samples the insoluble residue amounted to from *19 to 40 percent* of the residue. This statement must be either eliminated or amended to comply with the facts.

Exception must likewise be taken to the next statement, that the solution of the residue in water "is colored not deeper than light green by a few drops of ferric chloride T. S. diluted with 10 volumes of water." In all whiskies which are aged in wood for four years or more sufficient of the wood tannin is absorbed to give in this test a distinct greenish-black coloration. In compounded whiskies this color is usually brown, with little or no distinct green tint. The pharmacopœial statement, instead of being a negative one, should be a positive one, requiring that the solution of the residue *must yield a green coloration* on the addition of ferric chloride T. S., as an evidence of the proper maturing of the whisky by storage in

wood. The limitation on the amount of residue will eliminate the possibility of an excessive amount of tannic acid.

> "If 50 Cc. of whisky be shaken vigorously in a stoppered flask with 25 Gms. of kaolin, and after standing half an hour, be filtered, the color of the filtrate should not be much lighter than that of the whisky before treatment."

Exception is taken to this test for caramel. If kaolin of proper absorptive test be used in the quantity directed, the result will be a magma from which very little liquid can be filtered. If the test be retained, then it should be changed, directing 5 Gms. kaolin to 50 Cc. of whisky. It is to be noted that a *slight reduction* in the coloring occurs with all samples of whisky.

The color in whisky is due to added coloring, either caramel or that dissolved from the charred barrel. The use of caramel antedates by many years the use of the charred barrels for this purpose. Either of these colorings is harmless, and their use has been sanctioned by Federal statutes and decisions. If the entire residue consisted of coloring, it would not amount to more than from 0.2 to 0.3 percent. Since the amber color is required, it is immaterial if this color be produced by the addition of small quantities of burnt sugar or of a similar coloring substance prepared by charring wood. The quantity of either of these present in whisky answering the pharmacopœial requirement would be exceedingly small. Since both are harmless, and the use of caramel is provided for by laws and regulations of the government, I doubt the wisdom of the Pharmacopœia adopting a provision that would exclude caramel from whisky and raising an issue between its standard and the government enactments. My recommendation is that this paragraph relating to test for caramel be eliminated from the pharmacopœial tests.

> "To render 100 Cc. of whisky distinctly alkaline to litmus, not more than 1.2 Cc. of normal potassium hydroxide V. S. should be required (limit of *free acid*)."

A compounded whisky with practically no acid or an immatured whisky would meet this requirement, as no minimum limitation is fixed. On the other hand, some very good grades of whisky may slightly exceed this percentage of acid. (Note samples Nos. 21, 22, and 23.) It is to be noted that the compounded and blended whiskies are exceedingly low in acid content, as, for example, samples Nos. 32, 33, 37, and 39. A minimum and a maximum limit should be given, and the maximum might with safety be somewhat increased.

The method of applying this test is misleading. On adding solution of potassium hydroxide to whisky the amber color is deepened and it is difficult to note the end reaction. Litmus is not a good indicator for the purpose. I would recommend that in stating this test 100 Cc. of whisky be diluted with 200 Cc. of distilled water and the titration be made with tenth-normal potassium hydroxide V. S., and that phenolphthalein T. S. be used as indicator. The reaction is far more distinct under these conditions than would be possible with the present directions.

To meet the criticisms and comments as submitted above, the following monograph was reported:

Spiritus Frumenti.

WHISKY.

A potable alcoholic liquid obtained by the distillation of the fermented mash or mashes of cereal grains (wholly or in part malted)—such as maize, rye, wheat,

and barley, or their mixtures. Whisky intended for administration as a medicine should have been stored in wood containers for a period of not less than four years before it is used, and should conform to the following characters and tests:

An amber-colored liquid, having the odor and taste of diluted alcohol modified by flavors derived from the grain, substances extracted from the wood or naturally formed during the storage, and a slightly acid reaction.

Its specific gravity should be not more than 0.943 nor less than 0.932 at 15.6° C., corresponding, approximately, to an alcoholic strength of 38 to 43.5 percent by weight or 45 to 51 percent by volume of absolute alcohol (see Appendix, Alcohol Tables, page —).

Shake thoroughly 20 Cc. of whisky, 20 Cc. of distilled water, and 10 Cc. of ether; allow the mixture to stand until separation has taken place. Separate the ether layer and allow it to evaporate spontaneously on a watch crystal; the residue should not have a disagreeable or irritating odor (excess of *fusel oil*).

Evaporate 100 Cc. of whisky in a tared dish on a water-bath and dry the residue at 100° C. to constant weight; it should weigh not more than 0.3 Gm. This residue should not have a distinctly sweet or spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*). If the residue be treated with 10 Cc. of cold distilled water, the filtered solution should give a greenish-black coloration upon the addition of a few drops of diluted ferric chloride T. S. (1 in 10) (*oak tannin* from barrels).

100 Cc. of whisky diluted with 200 Cc. of distilled water should require for neutralization not less than 6 Cc. nor more than 15 Cc. of tenth-normal potassium hydroxide V. S., using phenolphthalein as indicator (limit of *free acid*).

BRANDY.

The statements in the preceding part of the report, although written on the subject of whisky, apply with almost equal force to the subject of brandy. A few additional comments, however, are necessary upon a proper monograph for brandy.

TITLE.—The pharmacopœial title, " Spiritus Vini Gallici," has been retained in the United States Pharmacopœia and in the British Pharmacopœia. As it is not the intent to restrict the brandy of the Pharmacopœia to French brandy only, " Gallici " should be taken out of the title. For the same reason, the synonym, Cognac, should not be given in the Pharmacopœia. A change in the pharmacopœial title evidently is necessary. The Austrian Pharmacopœia restricts its brandy to the cognac and takes as the title, " Spiritus Vini Cognac." The German Pharmacopœia and the Swiss each take as titles, " Spiritus e Vino," with " Kognac " and " Cognac " as synonyms. Neither of these seems to be acceptable for the United States Pharmacopœia.

It has been suggested that the title be made " Spiritus Vini," but this is very objectionable, because the title, " Spirit of Wine," is commonly applied to alcohol, and its adoption for brandy would lead to serious confusion. Chairman Diehl has suggested as a title, " Spiritus Vini Vites Viniferæ." This title appeals to me, but we are confronted by the fact that the *Vitis Vinifera* and its cultivated varieties are not the only grapes from which brandy is made. The American species, *V. Labrusca* and *V. æstivalis,* and cultivated varieties are also sources from which many wine grapes are now cultivated. For this reason, the validity of the title suggested by Chairman Diehl may be questioned.

Your referee is of the opinion that a distinctive title should be coined for brandy that would designate it as a spirit of grape wine, and would not restrict

brandy to that produced in any one country or district or that from any one grape. This leads to a suggestion that the title be made " Spiritus Vini Vitis."

It is well known that French brandy has always been colored with caramel, and that a special syrup of sugar partly caramelized is used for this purpose. The Austrian Pharmacopœia and the Swedish Pharmacopœia, recognizing this fact, permit in their official brandy, which is cognac, a residue of 1.5 percent. The United States Pharmacopœia of 1890 likewise permitted a residue of 1.5 percent, and none of these pharmacopœias have tests that would exclude the presence of caramel. The U. S. P. VIII reduced the allowable residue to 0.5 Gm. in 100 Cc., and included the kaolin test for the presence of caramel coloring. In the list of additions and deletions promulgated by the Committee of Revision on May 1, 1907, the caramel test was deleted. It is difficult to understand why the U. S. P. VIII should attempt to preclude the use of the finer types of French brandy by restricting the solid content, and likewise why, after having once recognized the error of the caramel test and deleted it from the U. S. P. VIII, it should be proposed to now reincorporate this test in the U. S. P. IX.

The following monograph with the proposed title is respectfully submitted:

Spiritus Vini Vitis.

BRANDY.

A potable alcoholic liquid obtained by the distillation of the fermented unmodified juice of fresh grapes. Brandy intended for administration as a medicine should have been stored in wood containers for a period of not less than four years before it is used, and should conform to the following characters and tests:

A pale amber-colored liquid, having the odor and taste of diluted alcohol modified by the flavor derived from the grape wine, substances extracted from the wood or naturally formed during the storage, and a slightly acid reaction.

Its specific gravity should not be more than 0.938 nor less than 0.926 at 15.6° C., corresponding, approximately, to an alcoholic strength of 41 to 46 percent by weight or 48 to 54 percent by volume of absolute alcohol (see Appendix, Alcohol Tables, page —).

Shake thoroughly 20 Cc. of brandy, 20 Cc. of distilled water, and 10 Cc. of ether; allow the mixture to stand until separation has taken place. Separate the ether layer and allow it to evaporate spontaneously on a watch crystal; the residue should not have an unpleasant or irritating odor (excess of *fusel oil*).

Evaporate 100 Cc. of brandy in a tared dish on a water-bath and dry the residue at 100° C. to constant weight; it should weigh not more than 1.5 Gm. Treat this residue with 10 Cc. of distilled water and filter; the solution should give a greenish-black coloration upon the addition of a few drops of diluted ferric chloride T. S. (1 in 10).

100 Cc. of brandy diluted with 200 Cc. of distilled water should require for neutralization not more than 15 Cc. of tenth-normal potassium hydroxide V. S., using phenolphthalein as indicator (limit of *free acid*).

A SYNOPSIS OF SOME RECENT EXAMINATIONS OF DISTILLED SPIRITS.

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO in Cc.
1	Neutral spirit from grain, Cincinnati, Ohio	0.8113	96 1	Colorless	.....	0.005	.....	.....	.....	.....	0.7
2	Grain neutral spirit, Peoria, Ill.	0.8122	95.8	Colorless	.....	0.004	.....	.....	.....	.....	0.5
3	Grain, neutral spirit, Peoria, Ill.	0.8099	96.5	Colorless	.....	0.004	.....	.....	.....	.....	0.6
4	Grain, neutral spirit, New York, N. Y.	0.8142	95.4	Colorless	.....	0.007	.....	.....	.....	.....	0.9
5	Whiskies—Blend A, No. 1 Bourbon, Louisville, Ky.	0.9496	41.5	Amber	Very light amber nearly decolorized	0.126	Glossy and spotted, faint woody odor, caramel taste	Almost completely	Scant	brown, scarcely green	5.5
6	R. Co., I. H. Brand, Louisville, Ky., 7 years old	0.9270	53.5	Amber	Only slight reduction of color	0.233	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Green-black	12.3
7	R. Co., I. H. Brand, Louisville, Ky., 5 years old	0.9245	55.	Amber	Only slight reduction of color	0.183	Spotted, dry, brown, woody odor and taste	Only partly	Decided	green-black	11.
8	R. Co., I. H. Brand, Louisville, Ky., 3 years old	0.9350	49.5	Amber	Only slight reduction of color	0.155	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Green-black	9.5
9	R. Co., I. H. Brand, Louisville, Ky., 2 years old	0.9320	51.	Light amber	Only slight reduction in color	0.175	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Green-ish	10.
10	A. Rye, B. D. Co., Louisville, Ky.	0.9430	45.5	Amber	Reduction decided, about ½	0.343	Glossy, gummy, caramel-like, sweet	Nearly entirely	Scant residue	Green-ish-brown	7.6
11	A, Bourbon; B, D. Co., Louisville, Ky.	0.9422	46.	Amber	Reduction decided, about ½	0.325	Glossy, taste caramel-like, sweet	Nearly entirely	Residue scant	Green-ish-brown	6.8
12	B, Bourbon; B, D. Co., Louisville, Ky.	0.9419	46.	Amber	Reduction very decided, about ⅔	0.335	Glossy, gummy, caramel-like	Partly	Residue scant	Green-ish-brown	4.1
13	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 6 years old	0.9150	59.	Deep amber	Only slight reduction	0.260	Spotted, dry, brown, woody odor and taste	Gm. 0.220	Gm. 0.040	Green-ish-black	12.2
14	T. Co., double, distilled pure rye whisky, Pittsburgh, Pa., 5 years old	0.9230	55.5	Amber	Only slight reduction in color	0.190	Spotted, dry, brown, woody odor and taste	0.140	0.050	Green-ish-black	10.2
15	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 4 years old	0.9240	55.	Amber	Only slight reduction in color	0.210	Spotted, dry, brown, woody odor and taste	0.146	0.064	Green ish-black	12.
16	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 3 years old	0.9242	55.	Amber	Only slight reduction in color	0.190	Spotted, dry, brown, woody odor and taste	0.133	0.057	Green-ish-black	11.7
17	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 2 years old	0.9291	52.5	Amber	Only slight reduction in color	0.135	Spotted, dry, brown, woody odor and taste	0.075	0.060	Green-ish-black	9.3
18	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 6 months old	0.9340	50.	Amber	Only slight reduction in color	0.105	Spotted, dry, brown, woody odor and taste	0.089	0.016	Green-ish-brown	9.6
19	Blended whisky, C. Co., Baltimore, Md.	0.9423	45.5	Dark amber	Reduction very marked	1.700	Glossy, gummy, sweet, fruity	1.640	0.060	Brown, only faintly green	10.6
20	Blended whisky, C. Co., Baltimore, Md.	0.9438	45.	Dark amber	Reduction very marked	1.65	Glossy, syrupy, fruity	1.630	0.020	Brown only faintly green	12.

A Synopsis of Some Recent Examinations of Distilled Spirits.—*Continued.*

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble in Gm.	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO
21	Eastern rye, New York, 4½ years old	0.9203	57.	Amber	Reduction only slight	0.245	Spotted, dry, brown, woody odor and taste	0.180	0.065	Green-black	16.2
22	Eastern rye, New York, 3½ years old	0.9228	56.	Amber	Reduction very slight	0.290	Spotted, dry, brown, woody odor and taste	0.220	0.070	Green	15.6
23	Eastern rye, New York, 2½ years old	0.9294	52.5	Amber	Reduction scarcely noticeable	0.230	Spotted, dry, brown, woody odor and taste	0.175	0.055	Green	15.2
24	Eastern rye, New York, 1½ years old	0.9280	53.	Amber	Reduction scarcely noticeable	0.167	Spotted, dry, brown, woody odor and taste	0.127	0.040	Green	11.3
25	Eastern rye, New York, 6 months old	0.9323	51.	Pale amber	Reduction scarcely noticeable	0.107	Spotted, dry, brown, faintly woody odor and taste	0.082	0.025	Light green	8.
26	H, pure rye, Ohio, 6 years old	0.9114	61.	Amber	Reduction very slight	0.210	Spotted, dry, brown, woody odor and taste	0.145	0.065	Green-black	13.3
27	H, pure rye, Ohio, 5 years old	0.9179	58.	Amber	Reduction very slight	0.202	Spotted, dry, brown, woody odor and taste	0.153	0.049	Green	11.6
28	H, pure rye, Ohio, 4 years old	0.9203	37.	Amber	Reduction not appreciable	0.195	Spotted, dry, brown, woody odor and taste	0.139	0.056	Green	11.2
29	H, pure rye, Ohio, 3 years old	0.9252	54.5	Amber	Reduction not appreciable	0.150	Spotted, dry, brown, woody odor and taste	0.102	0.048	Green	10.2
30	H, pure rye, Ohio, 2 years old	0.9292	52.5	Amber	Reduction not appreciable	0.155	Spotted, dry, brown, woody odor and taste	0.119	0.036	Green	9.9
31	H, pure rye, Ohio, 1 year old	0.9297	52.25	Pale amber	Reduction not appreciable	0.125	Spotted, dry, brown, woody odor and taste	0.083	0.042	Green	10.6
32	Blend, S. Co., Cincinnati, O.	0.9430	45.5	Deep amber	Greatly reduced, approximately ½	0.115	Glossy, brown, odor slightly woody, caramel taste	0.095	0.020	Greenish-brown	4.
33	Blend, S. D. Co., Cincinnati, O.	0.9387	48.	Deep amber	Greatly reduced, approximately ½	0.530	Glossy, only very slightly woody, gummy, sweet, fruity	0.510	0.020	Dirty brown, faintly green	5.1
34	Blend F, New York	0.9424	45.7	Dark amber	Greatly reduced, approximately ½	0.465	Glossy, brown, sweet, fruity and caramel-like	0.440	0.025	Dirty brown, faintly green	7.
35	Blend A, No. 1 Bourbon, Louisville, Ky.	0.9462	43.5	Amber	Greatly reduced, approximately ½	0.270	Glossy, slightly bitter, caramel-like	0.255	0.015	Brown, scarcely any green tint	4.3
36	Malt, New York	0.9459	44.	Very pale amber	Almost colorless	0.034	Almost odorless and tasteless	0.029	0.005	Pale green, scarcely any precipitate	1.8
37	Rye in bulk, bought from wholesale liquor dealer on druggist's order for whisky, Philadelphia	0.9445	44.5	Deep amber	Decided reduction, approximately ½	0.452	Glossy, spicy, fruity, sweet	0.447	0.005	Scarcely any precipitate and only faint trace of green	2.3
38	Rye whisky, 4 years old, supplied by wholesale druggist on a retailer's order, Philadelphia	0.9395	47.7	Amber	Slight reduction	0.208	Brown, part glossy and part spotted	0.158	0.050	Green-black	11.5

A SYNOPSIS OF SOME RECENT EXAMINATIONS OF DISTILLED SPIRITS.—*Continued.*

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO
39	P, blend, supplied by wholesale druggist on order of retailer, Philadelphia	0.9410	46.5	Amber	Greatly reduced at least ½	0.482	Glossy, gummy, hygroscopic, fruity	0.477	0.005	Not green, no distinct change	3.8
40	Philadelphia rye whisky, supplied by a wholesale druggist on order of a retailer	0.9437	45.	Amber	Decided reduction, at least ⅓	0.500	Partly glossy, gummy, faintly woody	0.460	0.040	Greenish-br'n	14.1

USE AND ABUSE OF DRUGS.

W. T. Little, M.D., Canon City, Colo., summarizes his paper on the above subject in *Colorado Medicine* as follows: Pharmacology is a branch of medical science second to none other in importance. It is essential to know disease, its cause and its natural history before we can successfully control it; but its prevention and cure is the ultimate purpose of all our efforts. By physical and chemical means we endeavor to restore to their normal function organs damaged by disease, and only when their functions are destroyed should we cut them away. Drugs are of the greatest value in modifying and restoring function, but they should be used with a precision that can come only from an exact knowledge of their action. The pharmacologic laboratories are gradually weeding out those drugs of uncertain value, as the expectorants, the hypophosphites, viburnum, strychnine, etc.; and, hard as it may be to part with old friends, it is our duty to do so if we are to maintain the highest state of medical efficiency. A knowledge of the physiologic action of a drug is essential to its correct use. We should know that our drugs are both active and pure. We should give drugs only when they are clearly indicated. In judging the worth of a remedy always maintain an attitude of scientific skepticism.

IS TETANUS (LOCKJAW) CAUSED BY VACCINATION?*

BY F. E. STEWART, PH.G., M.D., PHAR.D.

It is important for pharmacists to know that tetanus (lockjaw) is not caused by vaccination against smallpox. It has been my duty to investigate this subject in a number of cases ascribed to impure vaccine virus by the newspapers. In every case I have been brought in contact with not only the physician who did the vaccinating, but also with the pharmacist who sold the vaccine, and I have found such an unfortunate lack of information that I am impressed with the duty of bringing the subject before the pharmacists of the country that they may have accurate information.

Much opposition is being directed against compulsory vaccination laws by the anti-vaccinationists, and all of these cases of tetanus following vaccination are used by them as stock arguments against vaccination as a preventive of smallpox. Hence it is of the greatest importance to the physician, to the pharmacist, and to the public that the possibility of this particular infection should be carefully investigated.

In a recent case, where two children died of tetanus, following vaccination, in a neighboring state, the newspapers were filled with sensational statements in which the disease was ascribed to "impure virus." To make bad matters worse, the newspapers stated that "medical authorities agree that in cases of tetanus resulting from vaccination, impure virus is the cause."

One of the children referred to was vaccinated 26 days before symptoms of tetanus made their appearance. On inspection, after admission to the hospital, it was noticed that this child had several scars and wounds from scratches on the limbs; the other child, who was vaccinated 27 days before the tetanus symptoms occurred, showed a badly-infected sore on the knee. No other cases of tetanus were reported as having occurred from the use of the vaccine. Careful investigation was made to ascertain the disposal of samples of the same lot. About 20,000 packages of this vaccine were issued, and it is safe to assume that between 40 and 60 percent of it was used for vaccination in various parts of the United States, and in no instance was there any sign of tetanus following the vaccination.

Tetanus spores are very common. The soil is contaminated almost everywhere, especially in some parts of the country. "In nature, the tetanus bacillus has been found by Nicolaier and others to occur in the superficial layers of the soil. The earth of cultivated and manured fields seems to harbor this organism with especial frequency, probably because of its presence in the digesta of some of the domestic animals.[1] From the alimentary canal they reach the soil, where the vegetative form probably soon dies, but the spore form is very resistant and capable of living under the most adverse conditions for months or years.

While [2] "The vegetative forms of the tetanus bacillus are not more resistant against heat or chemical agents than the vegetative forms of other microörganisms,

* This paper and the remarks by Dr. William S. Wadsworth and C. Oscar Beasley, Esq., were presented at a symposium on the subject of vaccination, held on Tuesday evening, November 9, 1915, by the Philadelphia Branch of the American Pharmaceutical Association, at the Temple University School of Pharmacy.

[1] See footnote on next page.

[2] Hiss and Zinsser, A Text-Book of Bacteriology, p. 457.

tetanus spores, however, will resist dry heat at 80° C. for about one hour,[3] live steam for about five minutes. Protected from sunlight and other deleterious influences, tetanus spores may remain viable and virulent for many years. Henrijean has reported success in producing tetanus with bacilli from a splinter of wood infected eleven years before.

"The comparative infrequency of tetanus infection is in marked contrast to the wide distribution of the bacilli in nature. Introduced into the animal body as spores, and free from toxin, they may often fail to incite disease, easily falling prey to phagocytosis and other protective agencies before the vegetative forms develop and toxin is formed. The protective importance of phagocytosis was demonstrated by Vaillard and Rouget, who introduced tetanus spores inclosed in paper sacs into the animal body. By the paper capsules the spores were protected from the leucocytes, not from the body fluids. Nevertheless, tetanus developed in the animals. The nature of the wound and the simultaneous presence of other microörganisms seem to be important factors in determining whether or not the tetanus bacilli shall be enabled to proliferate. Deep, lacerated wounds, in which chips of glass, wood splinters, or grains of dirt have become embedded, are particularly favorable for the development of these germs. The injuries of compound fractures and of gunshot wounds are especially liable to supply these conditions, and the presence in such wounds of the common pus cocci or of other more harmless parasites may aid materially in furnishing an environment suitable for the growth of the tetanus bacilli. Apart from its occurrence following trauma, tetanus has been not infrequently observed after childbirth, and isolated cases have been reported in which it has followed diphtheria and ulcerative lesions of the throat.

"A definite period of incubation elapses between the time of infection with tetanus bacilli and the development of the first symptoms. In man this may last from five to seven days in acute cases, to from four to five weeks in chronic ones. Experimental inoculation of guinea-pigs is followed usually in from one to three days by rigidity of the muscles nearest the point of infection. This spastic condition rapidly extends to other parts, and finally leads to death, which occurs within four or five days after infection."[4]

The tetanus bacillus and its spores are so wide-spread in nature that opportunity presents itself for contamination of the vaccinal wound and the virus itself. This fact is well known and its significance thoroughly appreciated by the producers of vaccine virus. Every precaution is, therefore, taken in the preparation of the virus, and physicians should realize the necessity for observing great care in the treatment of the vaccinal wound, to insure the patient from the risk of infection from the soil by protecting the wound against contact with any substance liable to contain tetanus spores. However, in spite of such precautions on the part of the physicians, ignorance and carelessness on the part of parents and their children sometimes defeat these precautionary measures. It is exceedingly difficult to always determine the source of infection in each case of vaccinal tetanus, but investigations indicate that the virus itself is not the vehicle of infection.

The results of extensive investigations of this subject by Dr. John F. Anderson,

[3] W. F. Elgin, Director of the Mulford Vaccine Laboratories, says: "Later work of Francis, however, puts a higher limit than 80° C. In fact, one of our methods for differentiating tetanus from other bacilli is to heat to 80° C. for one hour to destroy toxins and other bacteria, leaving tetanus spores still viable." (Personal communication.)

[4] Francis, in a bulletin published by the U. S. Bureau of Hygiene (No. 95), gives as the shortest time, three days, and from that on to nine days, most commonly three to four days.

Director of the Hygienic Laboratories of the United States Public Health Service, are set forth in Public Health Report, vol. xxx, No. 29, July 16, 1915. The evidence is of the most exhaustive and convincing character. Surgeon Edward Francis, of the Division of Pathology and Bacteriology, working under Director Anderson, conducted experiments to determine the possibility of infecting guinea-pigs and monkeys, which are susceptible to both vaccinia and tetanus, by inoculating with a mixture of vaccine and tetanus organisms. All experimental animals failed to develop tetanus, neither did the living tetanus germs establish themselves in the vaccination sores, nor were there any symptoms of poison from tetanus toxin, which would have been the case if the germs had been able to grow in the sores. In other words, as stated by Dr. Anderson, " It is difficult, if not impossible, to produce tetanus in susceptible animals by vaccination with virus containing large numbers of tetanus organisms which have been purposely placed therein."

It is pointed out by Dr. Anderson " that this conclusion is strengthened by the rarity of such cases, only 41 being recorded among over 31,000,000 vaccinated subjects during 1904–1913 inclusive."

This view was further strengthened by the failure of the Bureau of Hygiene to demonstrate tetanus organisms in a large amount of vaccine virus, specifically examined for that purpose.

The production of vaccine virus is conducted by the large propagators under government license, issued by the Bureau of Hygiene. No vaccine is permitted to enter into interstate commerce except under the inspection of the Bureau. The inspectors are always alert and are constantly examining the facilities of the manufacturers and testing their products by purchasing vaccine virus on an open market and examining the same for tetanus spores and other contaminating micro-organisms.

In conducting the work of the Bureau, samples of vaccine virus sufficient for 2,000,000 vaccinations, obtained from the various propagators, have been examined, and in not a single instance were tetanus spores discovered in the vaccine. Dr. Anderson, therefore, further concludes " that, in view of the failure to demonstrate tetanus organisms in the large amount of vaccine virus specifically examined for that purpose, it seems exceedingly improbable that vaccine virus, as sold in the United States, contains organisms."

If the vaccine virus in the United States had been at fault during the time in which the production has been under the observation of the Bureau of Hygiene, many more cases of tetanus should have followed vaccination.

Further, no cases of tetanus following vaccination were reported in the United States Army and Navy during the ten years between 1904 and 1913 among 585,000 persons vaccinated, although the lymph used came from the same stocks as were used for the civil population. This, Dr. Anderson states, " is an argument in favor of the contention that the cases of tetanus following vaccination in the country at large were not due to infection contained in the virus."

The average period from vaccination to onset of symptoms of tetanus in 83 cases of tetanus following vaccination was 20.7 days, while the average mortality of 93 cases was 75.2 percent, this being slightly higher than the mortality of cases of tetanus due to other causes with an incubation of ten days or less.

Therefore, as concluded by Dr. Anderson, " cases of tetanus, occurring 15 or 20 days subsequent to vaccination, do not receive their infection through the vaccine virus. In all probability the infection is received about the tenth day." The cases above referred to were those of children who had been vaccinated 26 days previously, and, therefore, in the light of what has just been stated, it is evident that

the infection was not caused by the vaccination, but occurred not less than ten days afterward.

As stated by Dr. Anderson, "the infection with tetanus is received by a contamination of the vaccination wound, such as may occur in the infection or any other surgical wound not properly cared for. No matter how carefully the physician cares for the wound produced by vaccination, infection may occur, because it is impossible to keep the patient under continuous observation. While it is true that it is difficult, if not impossible, to produce tetanus by injecting the tetanus germs into healthy tissues, yet a suppurating wound, owing to the lowered resistance of the tissues, resulting from the growth of pus-producing organisms, is particularly susceptible to infection by tetanus germs derived from the soil or possibly blown in the dust by a passing wagon or automobile."

It should always be remembered that the occurrences of tetanus not following vaccination are far more frequent than post-vaccinal cases. For example, in 1909 the total vaccine virus distributed by the Health Department of Philadelphia, as recorded by Dr. Wadsworth, the Coroner's Physician, was 40,400; the total cases of tetanus investigated by the Health Department during the same year were 25, of those only three were post-vaccinal. In 1910, 65,000 packages were distributed; total cases of tetanus reported, 30 (post-vaccinal, 4). In 1911, 44,183 packages were distributed; total cases of tetanus reported 24 (post-vaccinal, 3). In 1912, total virus distributed by Health Department, 40,844; total cases of tetanus reported 24 (post-vaccinal, 2).

In these four years the city distributed 190,427 "vaccinations," and Dr. Wadsworth estimates that private firms sold at least double this amount, making more than one-half million vaccinations in the city. Tetanus followed in only 13 cases, while there were 90 cases of tetanus having no relation to vaccination. This would certainly seem to demonstrate that tetanus following vaccination can be accounted for in the same way as tetanus following any other wound presenting proper conditions for the reception and development of tetanus spores.

Before the introduction of vaccination, smallpox was the greatest scourge that affected the human race. In 1796, Junker wrote that 400,000 lives were lost yearly by smallpox. In 1803, King Francis William of Prussia, in an edict, stated that 40,000 died annually in Prussia of the disease. From 1761 to 1800, in the city of London, there was an average death rate of 2037 persons yearly from smallpox. From 1700 to 1800 it is estimated that an average of 500,000 persons died yearly from smallpox throughout the world. Before Jenner's discovery it is estimated that one-tenth of all the children born died of smallpox. Since the early part of the nineteenth century, when smallpox—which at first assumed epidemic form in Europe about 1700—had become a veritable scourge, suddenly began to decline coincident with the general adoption of vaccination, and that decline continued for decade after decade until the disease lost its terrors, the great majority of physicians now living have never so much as seen a case. Do we want a return of this terror? Do we want a return of the terrible smallpox epidemics of the Middle Ages? Do we want a return of conditions described by Lord Macaulay, who, writing of the death of Queen Mary of England, in 1694, said of smallpox:

"That disease, over which science has achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague has been far more rapid, but the plague has visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses; tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of

its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover."

If we do not want a return of this terrible time, let the newspapers, instead of frightening people concerning the " dangers " of vaccination by scare headlines, when an occasional death occurs from tetanus following vaccination, carefully investigate such reports in all cases, and, instead of permitting the public to draw erroneous conclusions from the publication of half-truths, let them caution the public in relation to the care of vaccination wounds to prevent possible infection with tetanus spores.

From the beginning there has been opposition to vaccination, some of which prevails even at the present time. The Anti-vaccination Society was formed in London to combat Jenner in his work. All kinds of arguments were brought forward against vaccination. It was claimed that the physical characteristics of the bovine species were transmitted by the vaccine, and that the persons who submitted to the operation developed horns and hoofs like a cow. Thousands of circulars were distributed, illustrated by a very remarkable picture, entitled " Cow-pox; or, the Wonderful Effects of the New Inoculation." This picture represented vaccinated persons with the heads of cows growing out of their foreheads. Women, otherwise good looking, were represented as having horns and hair of a cow in place of the natural hair. Various portions of the cow grew out of the body in different places.

Dr. Osler's Challenge to the Anti-vaccinationists.—" A great deal of literature has been distributed casting discredit upon the value of vaccination in the prevention of smallpox. I do not see how any one who has gone through epidemics, as I have, or who is familiar with the history of the subject, and who has any capacity left for clear judgment, can doubt its value. Some months ago I was twitted by the editor of the Journal of the Anti-vaccination League for ' a curious silence ' on this subject. I would like to issue a Mount Carmel-like challenge to any ten unvaccinated priests of Baal. I will go into the next severe epidemic with ten selected vaccinated persons and ten selected unvaccinated persons. I should prefer to choose the latter—three members of Parliament, three anti-vaccination doctors, if they could be found, and four anti-vaccination propagandists. And I will make this promise, neither to jeer nor to gibe when they catch the disease, but to look after them as brothers, and for the four or five who are certain to die I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration."

COMPULSORY VACCINATION LAWS.

We have digressed somewhat from our subject. The question before us for discussion is, " Is Tetanus Caused by Vaccination? " and the foregoing evidence proves overwhelmingly that post-vaccinal tetanus is not caused by impure virus. One of the reasons advocated by the anti-vaccinationists in support of their attempt to have the compulsory vaccination laws repealed is that the virus is impure and the vaccination carries with it various infectious diseases, including tetanus. We have shown that, so far as tetanus is concerned, this claim is unwarranted. The limits of this paper will not permit discussing the other phases of the subject. The intent of the paper is neither to advocate nor discourage compulsory vaccination laws, but to point out that one of the strong arguments against these laws urged by the anti-vaccinationists has no reasonable foundation. There is another phase of our subject which ought to be referred to before closing the paper, and that is—

how to prevent accidents following vaccination—and I can bring this paper to a conclusion in no better way than to impart some of the suggestions that have been made by public health officials in regard to the proper precautions to be observed in conducting this operation.

Study of the cause of post-vaccinal tetanus brings out one very interesting feature, and that is the influence of season in its relation to post-vaccinal tetanus. In 77 cases of tetanus following vaccination, the date of onset was determined, and of this number it was found that 29 persons who had been vaccinated developed tetanus in October, 15 in September, 10 in August, and 8 in November. The other eight months of the year show a total of 15 cases, with none in March or April. Therefore, over 80 percent of these cases occurred in the late summer and three fall months.

Dr. W. F. Elgin, in his paper entitled "Accidents Following Vaccination" (American Journal Public Health, September, 1915), calls attention to the same fact. He notes, by reference to his statistics, that a large proportion of the tetanus cases developed in the fall, while large amounts of virus are also distributed in winter and spring, with a small case rate for tetanus, and he asks, "Does this not indicate that weather conditions, dust, etc., are more favorable to tetanus development in the summer and fall than at other times?" Believing this to be so, he strongly urges that health officers and others responsible for the vaccination of school children should insist on a change in the time when this operation is performed as a routine procedure.

Vaccination is a surgical procedure, and the same care should be exercised in conducting the operation and in the after-care of the wound as employed in relation to any other surgical operation. Therefore, the following rules should be observed:

First.—Rigid cleanliness should be exercised in preparing the patient for vaccination.

Second.—Deep scarification should be avoided; no blood should be drawn. Also the cross-scarification method of vaccination, which is prohibited by law in some European countries, and the employment instead of two needle scratches or the rotary vaccinating chisel are recommended.

Third.—The physician should dress the patient's arm and give careful instructions as to the subsequent care of the vaccination wound.

Fourth.—The vaccination wound should be left alone for a week or ten days, at which time the dressing should be removed and the area around the vaccination cleaned with sterile water. The arm should then be dressed by the physician and the patient instructed to return at intervals for the inspection of the vaccinated area until the scab drops off in the regular way, which occurs from the twenty-third to the twenty-eighth day. It is important to avoid the use of the old-time bunion-plaster-shape shields, attached by irritating adhesive strips. The parents of the child should be provided with proper dressing and instructed how to use the same during the interim.

Fifth.—Only active vaccine should be employed, and the physician should be sure that the virus has been carried in a refrigerator and not exposed to heat, remembering that unless kept at low temperature the vaccine soon becomes inert and will not "take."

Sixth.—Vaccination should preferably be performed in the winter to get the best results, as the vaccine, being a living virus, is easily destroyed by summer temperature. Furthermore, there is less liability to accidents following vaccination in the winter, because the children are less exposed to dust and contaminating

bacteria. During cold weather children are not so liable to play in the streets or around stables where they are exposed to tetanus germs, and the vaccinated area receives protection from infection by the clothing.

Remarks by William S. Wadsworth, M.D.

I came to listen and learn, not to talk, but I do not hesitate to take my stand for any good work being done for the public health, and I gladly add my word in this good cause. While my addition to this subject has been very small, being limited to the paper already quoted, on tetanus records of Philadelphia, I am deeply interested in the problems and the subject as a whole.

Dr. Stewart has already given you a very clear and true summary of the conclusions and the facts on which they are based. It is certainly pertinent to the subject, if not altogether pleasant, to consider the opposition.

It is difficult to see how high-grade men can oppose such a movement, but the methods employed by the opposition are not those of high-grade men. These methods lack honesty and honor, and the subject is most unattractive to one who would like to think well of his fellow men.

How can there be two sides to the fight against pestilence? Of course, any crime will be defended by some lawyer, but such proceedings do not raise our enthusiastic approval. I cannot conceive how those who fight in the interests of pestilence can justify their acts. I can understand contending for greater care and improved methods, but not for such nihilistic standards.

To me there is one side—that of the honest and earnest worker for the health of the whole public, who, by using every possible precaution and striving with heartbreaking strain to find new precautions, seeks to make the only known means of fighting this pestilence safe. Perhaps one instance of the methods of crafty and unscrupulous opposition will be in order. While the paper quoted was in the hands of the printer, the opposition had published in an Ohio city a flashy account of cases of tetanus in Philadelphia *occurring in previously healthy persons and wholly due to vaccination,* and giving the number of cases which had resulted from all causes as due to vaccination alone. The number given corresponded with those given by me before the commission, and occurred nowhere else at that time.

This single instance is only a sample of the way truths are perverted for a bad cause. I could give you many. You simply cannot believe a word the opposition utters. Even when it contains the truth there is glaring falsehood.

I congratulate you on hearing Dr. Stewart's paper and thank you for the pleasure of meeting and speaking to you.

Remarks of C. Oscar Beasley, Esq.

As Doctor Wadsworth, in his remarks just finished, characterized the anti-vaccinationists as being " ignorant," as " using underhanded methods of fighting," and as " championing the cause of pestilence," I think that it is only fair that the audience should have a look at an anti-vaccinationist, for inspection purposes, to see whether we have horns or not, and also to hear the arguments that come from such " crazy " people.

Doctor Wadsworth says that there is only one side to the vaccination question. I say in reply to this what John Stuart Mill says: " He who knows only his own side of the case knows little of that."

The great obstacle that stands in the way of every attempt to secure, by intelligent discussion, a settlement of the vaccination question is that the vaccinationists

do not meet our objections with scientific data. Mere epithets and assumptions prove nothing.

The vaccination question has its historical and political, as well as its scientific, aspects. It is historical, in the sense that it involves consideration of the experience of communities with smallpox epidemics; and it is political, in that an influential element of the medical profession has caused compulsory vaccination to be put into the statute law, which is enacted by the legislative representatives of the people.

The greatest smallpox epidemic in history, both in the number of cases and in the proportion of deaths, occurred, not in prevaccination times, but in 1872, after more than a half century of well-nigh universal vaccination. It has been conclusively proved that of the more than 44,000 deaths from smallpox that occurred in England and Wales in 1870–71–72, at least 90 percent occurred in vaccinated persons, and the experience of Prussia and other German states, in the same epidemic, was similar. This failure of vaccination to protect the world from the furious smallpox epidemic of 1872 turned the minds of men toward more thorough investigation than had before been undertaken, of the protection that vaccination was alleged to afford to communities against epidemics of smallpox.

Jenner assured the English House of Commons, in his petition for remuneration, presented in 1802, that cow-pox "admits of being inoculated on the human frame with the most perfect ease and safety, and is attended with the singularly beneficial effect of rendering through life the person so inoculated perfectly secure from the infection of the smallpox." This was soon shown by actual experience to be a false premise.

Cow-pox virus contaminated with the virus of smallpox Jenner denounced as spurious.

Now the medical profession has almost entirely discarded cow-pox, and smallpox, only, is generally used for the propagation of vaccine virus. In other words, the members of the medical profession have thrown overboard their vaccination hero, Jenner. They have put Jenner's cow-pox virus into the scrap heap, and have substituted for it the matter of human smallpox.

Another dead-surely-right cult, arm-to-arm vaccination, which was upheld by the members of the medical profession for nearly a century, they finally discovered to be a mistake; and this, also, they have thrown overboard. In fact, they have now thrown overboard nearly everything, nearly every alleged fact, nearly every argument, upon which, in the beginning, they induced the governments of the leading civilized nations of the world to endorse vaccination, and subsequently to force it upon their people by the instrumentality of statutory compulsion.

Arm-to-arm vaccination was found to be a mistake, because it was dangerous to health and life. It was proved that by it many diseases had been transmitted from one arm to another. It was therefore discarded.

Anti-typhoid serum is a sterile substance made of dead typhoid fever germs; so, also, is diphtheria antitoxin a sterile substance. But vaccine virus is not sterile. It is decaying living matter derived from suppurating sores on diseased beasts. The introduction of such diseased matter into the human circulation is denounced by true biologists, except when vaccination against smallpox is concerned. Why the introduction of diseased living matter is always dangerous, except when vaccination against smallpox is concerned, is as yet unexplained.

Something has been said of the safety of which the public can rest assured because of laboratory inspection, not only by the vaccine manufacturer, but also by

representatives of the United States Public Health and Marine-Hospital Service. When we recall, however, that for five or six years several vaccine farms in this country propagated vaccine virus contaminated with the foot-and-mouth disease of cattle, and that this contamination escaped discovery during that time, causing hundreds of thousands of diseased vaccine points to be used for the vaccination of children, we can gather some idea of what the so-called laboratory inspection amounts to from the standpoint of public safety.

Tetanus germs exist in soil and in hay, and in the alimentary canal, the hair, and the manure of the calf. We can easily realize, therefore, that the very origin of vaccine virus is in an environment of tetanus. And when we recognize, further, that tetanus in the form of spores is apt to elude discovery, and, further, that tetanus spores require for their development only just such a favorable culture medium as the vaccination sore furnishes, we may conclude, by reasoning from analogy, that these facts are in favor of the theory that the germs of tetanus implanted in the vaccination sore are derived from the vaccine matter rather than of the theory that they are acquired from extraneous infection.

It has been asserted here to-night that Doctor Anderson's tests have shown that when tetanus germs were mixed with vaccine matter for the purpose of experimentally determining whether such matter could produce tetanus, this matter failed to produce tetanus in guinea-pigs inoculated with it. If this is so, why does it happen that these same germs cause tetanus when they are directly introduced into the vaccination wound, from outside infection, although they do not cause tetanus when they are directly introduced into the vaccination wound in the experimental inoculation of guinea-pigs?

The spores of tetanus cannot grow into adult tetanus germs and produce their specific toxin except in the absence of oxygen, and this is aided by the presence, also, of pyogenic organisms. So long as the vaccination sore is open and discharging its pus outwardly there is little likelihood of the tetanus spores developing, but when, after the scab begins to form, the air is excluded, and the affected tissues are deprived of oxygen, the spores develop in the suitable culture medium provided by the vaccination sore and produce their appropriate toxin, and the disease tetanus results. These conditions and the time required for the tetanus spores to develop into full-grown tetanus organisms account for the prolonged incubation period that usually characterizes cases of vaccinal tetanus. Indeed, Dr. Joseph McFarland, in his paper on "Tetanus and Vaccination," read at the Second Annual Meeting of the American Association of Pathologists and Bacteriologists on March 28, 1902, in speaking of severe local lesions following vaccination, says: "Lastly, and I think truly, it may mean that it is only when such local lesions occur that the implanted tetanus bacilli can find conditions suitable for their development." And Doctor McFarland adds, as one of the conclusions that he thinks seem justifiable from the facts stated in his paper: "The tetanus organisms may be present in the virus in small numbers, being derived from the manure and hay."

Dr. Robert N. Willson, of Philadelphia, while making bacteriological examinations of the contents of glycerinated vaccine points, found pus-organisms, the streptococcus, the staphylococcus, and the pneumococcus. Doctor Willson says that glycerin "would tend to accelerate rather than to retard the action of the tetanus process." Doctor Willson inoculated a white mouse with a culture of vaccine virus, with the result that one minute later the mouse died in convulsion. This culture was derived from a glycerinated point purchased in the open market and ready for use.

Thus it has been shown that vaccine virus itself, and the vaccination sore, furnish the best possible media for the development of the tetanus spores into the adult germs of tetanus, resulting in the disease itself. And in the face of these facts it is idle to declare that it is proved that cases of tetanus following vaccination must necessarily be due to some outside infection. This is especially so as Bolton states, in "Williams's Manual of Bacteriology," that "the toxic substance of tetanus appears not to be a ptomaine, as was at first supposed," and that "its exact nature is not determined." As the very nature of the toxic substance of tetanus is unknown, any positive statements, such as have been made here to-night, about the virus used in vaccinating not being the infecting agent, are manifestly unwarranted by the facts.

What the anti-vaccinationists want is to receive satisfactory answers to all these questions, such as will clear up all the doubtful points concerning vaccination, and not mere dogmatism and mere assertion. Present experience proves that smallpox can be kept out of a community or kept under control by quarantine and isolation and other sanitary measures without vaccination. In England and Wales vaccinations have decreased in number nearly 50 percent in recent years, and smallpox has been kept down to the lowest point it has reached there during the last four hundred years. The medical profession will have to deal more frankly with the public in this matter if it expects the confidence of the public. Utah has expressly prohibited compulsory vaccination, and various other states of the Union have done away with the general enforcement of vaccination; and Great Britain is relieved by parents being simply required to make a written declaration, and the child is left unvaccinated, and no increase of smallpox has followed among its great unvaccinated population.

The vaccine virus now most generally used is human smallpox matter modified by passage through lower animals and by mixture with glycerin. In the original preparation of seed virus the most satisfactory material was found to be pulp taken from the vesicles on the corpses of persons that had died of smallpox. This material was inoculated into the monkey, on whose body it makes a sore and sometimes an eruption. After passage through several monkeys, the resulting decayed and diseased matter from the sores of the monkey is in turn inoculated into the calf, when another kind of sore is produced, resulting from the diseased smallpox matter, plus the diseased tissues of the monkey; and then the process is completed by the addition of impurities derived from cultivation of this diseased matter in the skin of series of calves. Such an origin for any substance to be introduced into the human circulation is abhorrent to both reason and science.

Continued inoculation of the seed virus, from calf to calf, in time produces a still further modified virus, which loses the power to make a satisfactory sore. The vaccine manufacturer must then get something to start with again that is sufficiently impure to last for a while. Finding themselves in this predicament some years ago, propagators of vaccine virus sent to Japan and procured some seed vaccine virus from that country. What it was, was unknown. It seemed, however, to be of sufficient impurity and disease-producing character to start a new strain of vaccine virus in the United States. For five or six years this virus was sent out, and then it was discovered that in spite of the Federal inspection this seed virus was matter either derived from or contaminated with foot-and-mouth disease. Meanwhile, many hundreds of thousands of children had been inoculated with the vile stuff, and what diseases it left in its train is not known.

COMMENT.

Some of the foregoing statements will doubtless be challenged by the medical profession generally. According to Edwardes,* the epidemic of smallpox in Europe in 1870–5, referred to by Mr. Beasley as occurring in 1872, "after more than a half century of well-nigh universal vaccination," really occurred at a period in England when compulsory vaccination was only just beginning. Comparison of the death-rate during this pandemic of smallpox between countries where compulsory vaccination existed and those without compulsory vaccination demonstrated so clearly the benefit of compulsory vaccination laws that it acted as a touchstone in Europe and greatly stimulated the passage of such laws. The vaccination laws throughout the world were made much more stringent from this time. Vaccination was already compulsory in the German Army, but Emperor William, as a result of his observation in regard to this epidemic, issued an order making vaccination compulsory in civil life, and the result has been that smallpox epidemics in Germany have been unknown since that time. According to Edwardes, the death-rate per million population during the years 1871 and 1872 was as follows:

1871.

With Compulsory Vaccination Laws.—England, 1012; Scotland, 428; Bavaria, 1045; Sweden, 78.

Without Compulsory Vaccination Laws.—Prussia, 2432; Austria, 392; Belgium, 4168; Netherlands, 4355.

1872.

With Compulsory Vaccination Laws.—England, 821; Scotland, 718; Bavaria, 611; Sweden, 81.

Without Compulsory Vaccination Laws.—Prussia, 2624; Austria, 1899; Belgium, 1560; Netherlands, 1021.

It was not until 1873 that Austria was influenced by the epidemic to any great extent. During that year the death-rate in that country was 3147.

For further statistics see Report of The Pennsylvania State Vaccination Commission, March, 1913. Henry C. Lippincott, Secretary.

* "Concise History of Smallpox and Vaccination in Europe," by Edward J. Edwardes, M.D., member of the Royal College of Physicians, London.

ANTITOXIN IN BLOOD OF TETANUS CONVALESCENTS.

Löwy found no evidence of an antitoxin in the serum from 4 patients with tetanus (drawn before antitetanus serum had been injected), nor in 5 normal serums, but the tests were positive in the serum from 10 among 15 convalescents. Excluding the 5 whose serum reacted positively to horse precipitinogen, this leaves 5 with an unmistakable antitoxin content in their serum, capable of neutralizing the dose of toxin fatal for the mouse. This antitoxin does not last long; by the thirty-seventh day it failed to neutralize the toxin effectually and the mouse died. No connection between the antibody production and the course of the tetanus or location of the wound could be detected.—*Wiener Klinische Wochenschrift*, November 25, 1915, through *J. A. M. A.*

THE STEVENS-AYRES BILL.*

BY J. LEYDEN WHITE.

Over thirty years ago, when I was a boy in a wholesale drug house in Chicago, word came to us one day that a small retail druggist on Twenty-second street was selling a one-dollar patent medicine for ninety-four cents. This, within my knowledge, was the first cut-rating in Chicago, and about gives the time when the fight against the cutter commenced. This old association, the American Pharmaceutical, was the only national organization of pharmacists at that time, but, being considered as exclusively professional, it did not take up the fight against the cutter as an organization, although its members were from the first active in individual and group work. Later the National Association of Retail Druggists was formed for the single purpose of antagonizing the methods, such as are now known as unfair competition, and among the charter members of the National Association of Retail Druggists were some of the most prominent members of the American Pharmaceutical Association. It is not my intention to go into the history here, so I will now take up the matter of the bill now before Congress, which represents the state of work at the present time.

Each period has its new phrases that busy the tongue. To-day there are few in such common use and expressing so much of vital importance as "unfair competition." Under the humbuggery larded by the words "bargain," "cheap," "cut rate," "below cost," and so forth, greed is doing its merciless work to crush mercantile individuality, and, even more, destroying the small towns, giving growth to city slums and forging the fetters of a great distributing monopoly upon the people of the nation, of the world.

Of all the methods of unfair competition, price baiting with standard merchandise is the most demoralizing. Next to this cutting of townsman against townsman, brother against brother, comes (and it is a very close second) the monopolistic process of the mail-order house.

If an inventor, an originator, or the manufacturer who has purchased the right to the invention or novelty may not lawfully maintain the selling price of the goods all along their path of exchange until they reach the consumer, then the very corner-stone of American success, the foundation of its greatness, originality, genius, has been destroyed. Soon the hour of labor of the watchmaker will receive no greater reward than the hour of toil of the man with the hoe.

The maintenance of price is lawfully upheld in public service by the interstate commerce and many public utilities commissions. It is upheld by the government itself in all its own transactions, from the sale of penny postage stamps to the salaries of cabinet officers. It is upheld with more vigor, more contention in the union wages of those who produce merchandise than in any class of transactions. As a matter of fact, the Stevens Bill seeks to give to the sale of merchandise nothing more than is now practically given to all the rest of the country's business. Even in merchandising, this justice, this right of the maintenance of sale and resale prices was acknowledged to be legal up to a few years ago.

This being no legal document, I shall not go into a *résumé* of the Miles, Sanatogen, Macy, and other cases which, if they did not exactly legalize unfair competition, certainly did much to cripple fair trade. What we face is the fact

* An address delivered before the City of Washington Branch of the American Pharmaceutical Association on December 29, 1915.

that, as at present interpreted, the laws of the land forbid a living profit preservation, or, as latterly and generally described, price standardization. It therefore follows that for the restoration of fair trade of such nature as will give the advantages of honest merchandising to the American consuming public it will be necessary to have Congress enact a law. It is absolutely necessary for the protection of consumers, producers, and all handling and forwarding elements that the Stevens-Ayres Bill be passed.

Peculiarly, happily, the Stevens-Ayres Bill holds provisions that directly refute most of the criticisms made against it. Thus some may say that in allowing a maintenance of price it proposes to foster monopoly, whereas the second paragraph of the bill says of the person seeking protection under it:

> Such vendor shall not have any monopoly or control of the market for articles belonging to the same general class of merchandise as such article or articles of commerce as shall be covered by such contract of sale; nor shall such vendor be a party to any agreement, combination, or understanding with any competitor in the production, manufacture, or sale of any merchandise in the same general class in regard to the price at which the same shall be sold either to dealers at wholesale or retail or to the public.

That there may be no discrimination in prices at any stage of the passage of the article in exchange, the bill provides that all prices to wholesaler, retailer, and to consumer shall be filed in schedule form with the proper bureau of government, and that each separate article so protected shall have affixed to it a notice showing the price at retail, the name and address of the maker, and the trademark or other brand of the article. It should also be noted by this reference to brand that objections often made to the bill have no standing at all when such objections refer to commodities, for the law sought under this bill bears upon nothing but trade-marked or otherwise lawfully branded goods.

The thoughtless and yet common objection to the bill that it is unconstitutional is refuted by the fact that within it there is nothing mandatory. It is simply permissive. It does not compel any manufacturer to contract under it for the maintenance of a resale price, but it does permit him to if he so choose.

It is also sometimes claimed that dealers would become "stuck" with "dead," damaged, or otherwise unsalable stock, because of the prohibition against cutting. However, Section D of the bill explicitly provides for just such contingencies.

In declaring the perfect justice and economic harmony of maintaining a resale price under such restrictions as this bill provides, we contend that the mark of genius, of originality, of energy, of perseverance as is evidenced by the brand, does, in the vast majority of cases, follow into the goods. That is to say, that no price restriction accorded to an article having a mark of identity will be of any lasting benefit to it unless the article is meritorious within itself. Such subtle frauds as have sometimes passed public scrutiny only can or should be reached by the Pure Food and Drugs Act and similar laws. Indeed, the Stevens-Ayres law should be a powerful factor in elevating and purifying merchandise, for in stimulating the unobstructed sale of goods of proved merit it would lessen the market for worthless or harmful imitations. Here again is shown the anti-monopolistic character of the bill, for there is nothing in this world so independent as thought, the seed of genius, the flower of individuality, and so, by preserving a market for goods of distinction, the field of fair competition will be maintained, because there will always be the coming of things new.

Under fair conditions the little retailer can give just as good service and just

as low average prices as the big fellow. This seems like an extreme statement, but it is true now, and, if you will pardon the play of language, growing truer. Exhaustive investigations have proved that the overhead, the gross selling charges per dollar of business done are heavier in the big cut-rate stores and mail-order houses than in other businesses. That these charges have become excessive has been evidenced by combined efforts to lessen, even do away with, such things as writing- and reading-rooms, varied forms of amusement, and even going so far as to use coöperative unsigned advertisements asking the public to cease buying goods on approval, making exchanges, and asking delivery of small parcels.

Now you may say that if this is so the independent retailer, and conjointly wholesaler and manufacturer, does not need protection from the varied sorts of cutters. The independent merchandiser or manufacturer does not need protection in a fair field, and he does not ask it. He is simply asking the restoration of a fair field. The size of the individual business cuts no figure here. This is a warfare of truth against falsehood with the two-edged sword of the law apparently placed in the hands of falsehood. The Stevens-Ayres Bill simply seeks to deprive falsehood of this weapon and restore to us, to give to all, the simple, the fundamental American right of contract, even now denied in no channel of commerce, law, or ethics, except in the sale of merchandise.

That the great cut-rate establishments must make a larger gross profit on sales than the small dealer is now commonly acknowledged, and therefore, in order to compete with him, they must resort to unfair competition. They may cut the price below their actual cost on a line of well-known trade-marked goods in one department for a certain time, and make up the loss many times by selling unbranded, unknown, oftentimes unworthy goods in other departments at extortionate prices. Thus the small dealer whose whole business is in one line, such as drugs, groceries, or hardware, suffers, is misrepresented, by those who choose his only line as one of their many lines for the false and misleading methods of price-cutting.

The passage of the Stevens Bill would not in the least lessen true competition. Rather would it increase it, for it would advance competition to the basis of business ethics all intelligent people are advocating. It would bring the competition of qualities, quantities, convenience, salesmanship, and generally progressive methods. Nor would the Stevens law even lessen the competition in price-making. It would increase that also, for it would bring conditions that would stimulate manufacturers to vie with each other in efforts to present the largest quantities of the best qualities at the lowest standardized prices.

If it is unfair and un-American to pay labor less than a fair wage for producing merchandise, there can be no worse phase of such general unfairness than to necessitate the scab wage and the sweat-shop product in order to secure goods to meet the unfair competition of cut prices. And it is a notorious fact that the great mail-order houses and lower classes of department stores are enormous buyers of the unbranded goods made by convicts, children, women, and underpaid labor in general. If it is against our national standard of fair play to underpay any man, woman, or child for making a thing, then it must be just as much of a national degradation to underpay, to crush the weak, to destroy individualism by destroying profits and forcing the independent retailers out of business and making them, their children, oftentimes even their wives, become the hirelings of the monopolistic cut-raters.

It is strange that the masses of America cannot see; it is lamentably inexplicable that American labor cannot see, or at least does not acknowledge that everything which has to do with merchandise, from the gathering of the raw

materials to the placing of the finished product in the hands of the consumer, is included within production. Accepting as an economic fact the claim that decreasing cost of production increases consumption and thus benefits the race, we must at the same time declare that the decrease in cost of production must be general to be beneficial, for if the race is injured by degradation of labor through decrease of the wages of manual workers, it must be fully as greatly injured by the lowering of the living standards of those whose part in production is the retailing thereof.

The most serious criticism that can be brought against organized labor; one that questions its intelligence and brings doubt of its sincerity, is that it demands standardization of prices in everything and every person connected with merchandise, from the farm, the mine, the forest to the retailing counter itself; even organizing and demanding a standard price, a union wage for retail clerks, and there at the counter immediately coming to a right-about face, and by its countenance, by its practices, even by its preachments, commence an inevitable tearing down of all these wage standards it has set by not only refusing its support to the effort consistently to complete the chain with the standardization of prices, but, on the other hand, giving its vigorous and outspoken support to predatory rate-cutters, and going further by upholding the trading-stamp coupon and other insidious something-for-nothing schemes by which the people are decoyed and fleeced.

Up to a few generations ago *caveat emptor* applied to all the merchandising of the world. It was assumed that the only reputation any merchant could have was a bad reputation, and so it was that the buyer was universally warned to beware. He was not only made to take the responsibility in a play of wits, but he was expected to have the needed knowledge and use unlimited time to protect himself in every deal. After a while it probably happened that one miller who ground his grains well might have used a peculiar knot in fastening the mouth of the sack. So the knot spoke the name of the miller and became the brand for his meal. It was his trade-mark, and the sight of it, its acceptance as a guarantee for quality and measure, saved the buyer both the mental labor and the time of haggling. With such a standard for quality and measure the standard price automatically came. Thus originated what has undoubtedly been a blessing to the world at large and to America in particular—the package system of merchandising.

Now the predatory cutter does not want to restore all the conditions of the age of barter, but he does seek the opportunity to dispose of inferior goods at unreasonable profit. To accomplish this he adopts two methods, and both dishonest, both appealing to human greed. In the first he advertises standard brands at below cost, and then at the same time turns trade from them while acknowledging their merit by offering a profitable substitute which he says is " just as good." The second process is to sell the branded articles freely at the advertised cut price, perhaps actually taking a direct loss on every sale, but at the same time, by advertising and in every other way, bring other, unknown, unbranded, inferior, and overpriced goods before the purchaser, and thus, by possibly selling 50 cents' worth at a loss of 5 percent, induce the sale of $5 worth at a profit of 30 percent.

What is the result upon the people of the nation as a whole?

Congressman Kelly, in his speech in the House of Representatives, said:

> It means making a nation of deceitful bargainers, putting a premium on cheating practices, and putting a handicap on the honest dealer, while injuring the buyer from every angle. It forces the lowering of qualities in all articles, and the substitution of articles driven from the market. The retailer must make a profit to stay in business; if he cannot make it on some articles, he must increase his profit on others.

We may add that, as it is fundamentally true that honest advertising decreases the cost of merchandising because it saves more in the value of time to all concerned in the sale than the cost of the advertising itself, or, to express it differently, as advertising saves more than its own cost in the decrease in selling cost that it effects, therefore any return to past methods, to the use of time for haggling and shopping, to the time consumption, humbuggery, and fraud of barter must advance the general cost of goods, and that this has actually been the effect is proved by the fact that, while cut prices and " bargains " were never so common in America as they are now, the cost of living was never so high.

While we commonly hear of the injury to small towns by the mail-order cutters and the consequent demoralization of real estate values, few realize how much cut-rating and concentration of business in the hands of the few have to do with the disturbance of fiscal conditions in the cities.

At the hearing on the Stevens Bill before the Interstate Commerce Committee of the House of Representatives, Miss Laura A. Cauble, a social worker of New York, said, among other things:

I investigated 526 small stores in one year, and in that time price-cutting in the larger establishments either forced the sale or the failure of 116 of these small stores.

Believing that more may be accomplished through discussion to-night than by a long talk from me, I shall briefly state what has been done to make a law of the Stevens Bill, and what the prospects are for its enactment.

The rebellion against unfair competition through price-cutting was commenced by retail druggists about twenty-five years ago. For a number of years they worked practically alone, and accomplished little more than agitation through expressions of personal opinion. Later their organizations took up the work and carried it on until it became a national issue. Their first rebuff came when through actions in courts, brought by opponents, they found, to their amazement, that not only were they forbidden to enter into any common agreements for the maintenance of retail prices, but even the right of contract between manufacturer and retailer for the protection of such a price was denied.

After the first federal court decisions of an adverse nature were handed down there was for some time longer a continuance of effort to find a way to maintain prices without violation of existing laws. While it may be said that such effort is not yet entirely abandoned; while such decisions as those in the Cream of Wheat, Victor Talking Machine Company, and others are favorable, and in certain contingencies effective, it has been for some time commonly acknowledged that a general and thoroughly fair system of price standardization demands congressional legislation, the passage of a law explicitly sanctioning the right of voluntary contract between producer and both wholesale and retail distributers.

An appreciation of this necessity brought together a number of the most prominent retailers, manufacturers, lawyers, wholesalers, professors of political economy, and others in the land. They, led by Louis D. Brandeis, the famous lawyer, framed the Stevens, now the Stevens-Ayres Bill. They at the same time organized under the title of the American Fair Trade League.

The bill was introduced in the House of Representatives by Congressman Raymond B. Stevens, of New Hampshire, on February 12, 1914. At the time of its introduction few members of Congress had given it any thought at all, but, before the Sixty-third Congress had adjourned, the Stevens Bill had become familiar to the great majority of the members of both House and Senate; it had

figured largely in the hearings before both the Interstate Commerce and Judiciary Committees of the House when they were framing the Federal Trade Commission Bill and the Clayton Bill, and it has been said that the agitation for the Stevens Bill was largely responsible for the insertion of the unfair competition clause in the Federal Trade Commission Act. Aside from this, the Interstate Commerce Committee of the House held a hearing on the Stevens Bill itself before adjournment, at which Louis D. Brandeis was the chief witness.

When the Sixty-third Congress ended by limitation on March 4, 1914, about one-third of the members of the House and a like number of Senators had pledged themselves to its support.

Naturally, among those who failed to return to the following Congress for various reasons were a number of those who had been pledged to the bill. But, despite this, the work for the bill, especially by retailers, continued so persistently through the long summer that when the Sixty-fourth Congress assembled on December 6 there were pledged to support the bill 165 members of the House of Representatives out of a total of 435. This does not include the many who may properly be classed as favorable, but only such as are pledged to support the bill in letters over their signatures. To this number fifteen have been added since Congress reconvened. While the efforts to secure the pledges of Senators have not thus far been very great, fully as large a percentage of the Senate is pledged, and some prominent Senators have given the most outspoken support that the bill has received from any officials. It is significant that the average of pledges from both parties is so nearly even as to prove the bill to be absolutely nonpartisan. Also, while we feel that the problem of unfair competition will have prominent and fair attention by all administrations to come, it is only fair to state that no administration has ever given the matter such clear thought, never given the little fellow such a square deal, as has the one presided over by President Woodrow Wilson.

Of course, when the Sixty-third Congress expired by limitation all bills died with it, so when the present Congress convened there was, technically at least, no Stevens Bill. However, it was reintroduced on December 14, 1915, by Representative William A. Ayres, of Kansas, and it could not have appeared in the present Congress with a better sponsor behind it. Mr. Ayres acted purely voluntarily, stating that he introduced it merely " because it is a good bill and should be passed." As proof of the breadth of the man who now fathers it it should be said that he still refers to it as the Stevens Bill. But, though he thus acknowledges the importance of retaining the name by which it is so well known, many are justly referring to it as the Stevens-Ayres Bill.

Mr. Ayres is a young and mentally and physically vigorous man. He comes from an economically pivotal state, as Kansas suffers much from the mail-order affliction; he represents one of the most progressive constituencies in the nation, his home being in Wichita; he is personally close to and in hearty sympathy with the retailers of his country, and the fair trade of the nation is to be congratulated upon having so clean and valiant a champion for its cause.

While fully appreciating that Congress has before it problems graver than any since the days of our Civil War; while earth itself seems to be like unto a great mine, ready for a universal economic explosion, we are convinced that the Stevens-Ayres Bill will be prominently before Congress from the day it returns, January 4. Finally, we believe that it will pass both Houses of Congress, be signed by the President, and become the law of the land before Congress adjourns by limitation, March 4, 1917.

ADVERTISING THE RETAIL DRUG BUSINESS.*

BY J. THOMAS LYONS.

Before we can come to any conclusion regarding advertising we must first come to some understanding as to what we mean by the word "advertising."

You know, I am often told, especially by manufacturers; they will say: "Lyons, we have been in business for several years. We have gone ahead every year and made money all the time, but we have never advertised in any way." I generally reply:

"My good fellow, it doesn't matter how long you have been in business, you have been advertising from the very first day that you opened your door. Every package of goods that goes out of your shipping department is an advertisement for you; every package that leaves your store is an advertisement for you; the clothes you wear; the things you say; the manner in which you treat your fellowmen; the manner in which you walk down the street are all advertisements in the truest sense of the word.

"Advertising does not necessarily mean bill boards, street cars, newspapers, blank walls, circulars, programs, letters, or any one specific thing, but advertising means anything that attracts the attention of one person or of a million people to your business or to you personally as the proprietor of that business, and if the retail druggist could only realize that almost every waking hour he is advertising or *mis*-advertising his business, he would pay some attention to the importance of correct advertising.

"If an efficient man were to be called by a neighborhood druggist and told to do what he could to increase the profits of the business, the first step, no doubt, would be to see if three or four dollars in white paint would not be a good advertisement in the druggist's window. If there was anything about the exterior of the building that might create the impression in the mind of the passer-by that carelessness and slip-shod methods prevailed within, that condition would have to be corrected.

"The interior of your store often has an unconscious influence, either favorable or unfavorable, on the prospective customer, and you cannot get correct store atmosphere unless the things therein are right.

"The average neighborhood druggist cannot advertise in newspapers profitably because he pays for the total circulation of the paper, and can hardly cash in on more than 5 percent of the circulation. Many druggists have tried to build up a telephone business, but this has often proved disastrous, because the cost of delivery takes the profit from the sale.

"If I were a neighborhood druggist I would do intensive advertising in my own neighborhood. I think it might be good business for a druggist to buy an invalid's chair to be loaned out to convalescent customers and charged up to advertising. The good-will of a family could be obtained through this method at a very low cost.

"At this time of the year it might be good business for a druggist to have a mail box in his store whereby the younger children of the neighborhood could mail their letters to Santa Claus. This would not only bring the children into

* Read before a joint meeting of the Baltimore Branch American Pharmaceutical Association and Baltimore Retail Druggists' Association, December 13, 1915.

the store, in most cases accompanied by one of their parents, but it would give you an opportunity to obtain a splendid mailing list of names and addresses for children which could be used to advantage every month.

"I would promote children's contests, outlined pictures to be filled in with ordinary school crayons, the best and neatest design to receive a box of candy each week or every month, and I would get the candy manufacturer to donate the candy, because in return for it I would give him an advertisement in my window.

"I would concentrate on the doctors. I would try to find out when a doctor had a birthday, and every year I would send him a birthday card or any little thing to get his good-will and all the time I would realize the value of advertising.

"I have seen many a druggist who could have spent 10 cents with a boot-black and charged it up to profitable advertising. I have seen many a druggist who could have spent 50 cents with the manicurist or 25 cents with a barber and charged it up to good advertising.

"Sometimes I wonder, is it because the druggist, as a rule, is better educated than men in other retail lines that he apparently is not the same efficient business man? The average neighborhood druggist will tell you that he is overworked—that the public imposes on him—that they come in to buy stamps and postal cards, and yet a retailer in any other line will tell you that all he wants is to get the people into his store and he will take a chance on selling them, and in most cases he does.

"Have you ever considered that when you open a new store you do not create any new business? As a rule, you depend on your success to switch business from a competitor to you.

"Within the last ten years prescription business in the United States has fallen off about 40 percent, due to a number of things. Here in Greater Baltimore we have 480 drug stores serving about 750,000 people, which, at a most conservative estimate, allows one drug store for every 400 families in the city of Baltimore and suburbs.

"Competition has been very keen here, with the result that everybody has been cutting prices all over the town, the greatest cutting work being done in the shopping district. Cutting prices is all right when you are the only cutter, but when everybody cuts down no one has any advantage, and the disadvantage is that most every one does business at a loss.

"Cutting prices in the drug line does not increase consumption. If I buy two tubes of shaving cream, say, for the price of one tube, I cannot possibly use more cream, even though it costs me less money, and you have stocked me up with cream at little or no profit, when it would be just as easy for you to have gotten a sufficient profit from the sale.

"The result of all this cutting in Baltimore, as I see it as an outsider, has been to cause more or less business demoralization, because you have clogged up the outlets for your business, just the same as if you would stop the circulation of your blood your body would decay, and all the cutting in the world will not increase consumption of goods, and no business can go ahead which does not at least stimulate a greater use of the article itself.

"The druggist is a good fellow; the druggist has been imposed on; the druggist too often holds the bag for the manufacturer while the latter gambles in his territory. If I were a druggist I wouldn't put in any line of new goods unless there was a legitimate reason for it.

"If I were selling, say chewing gum, I can't see why I should put in another line of chewing gum unless I would make a better profit for the same quality gum

than the lines already on sale in my store. The more money I put into chewing gum, into cigars, or into any other special department, the harder it is for me to turn over that investment, and my success depends on turn-overs.

" If I were a druggist I wouldn't have anything to do with a manufacturer who puts in his advertising, ' Beware of substitutes.' The manufacturer who tells the public that the druggist substitutes and then expects to get the coöperation of the druggist is certainly as foolish as the druggist who gives it to him.

" The druggist is not necessarily an order taker. He is a business man. He has as much right to sell the public the thing he wishes to sell the public as the manufacturer has to sell the various retailers their own special lines, and if I were a retailer, I would pay especial attention to those manufacturers who were advertising me as a substituter.

" Then, too, a manufacturer desires to put a new chemical on the market. Instead of seeing the druggist he sees the doctor, gets the doctor to write a prescription for the chemical. The prescription is brought to your store, you are going to get 45 cents or 50 cents to fill the prescription, and then in order to fill the prescription you must go to a wholesale house and pay 75 cents or $1 for a bottle of this new chemical. Nearly all of you have such bottles in your store from which you have filled only one prescription, and you did it at a loss. Before I would be willing to lose money on one prescription, I would call up the doctor and tell him the condition and ask him if I bought a bottle of this medicine to accommodate his prescription, could I depend on him to send a sufficient amount of prescriptions to use it all.

" In fact, success with me is not psychology or sociology so much as a knowledge of salesmanship and being convinced of the fact that I am responsible for my own condition. Once I get the confidence of my trade, I can do anything I want with them until I abuse that confidence, and I would do everything possible at all times to merit their confidence.

" The druggist is an educated man, as I have said before, and the future outcome of his store and of his city depends on him individually and depends on him collectively. If you men will get together here in Baltimore and do what you can to bring about a better condition in the drug business generally, you will all profit, and in the years which are to come it will be indeed pleasant to realize that you built on the granite of character instead of the quicksands of a clever selfishness."

We are, all of us, whether young or old, famous or obscure, people of influence. We can not live a day without affecting the world somewhat for good or ill, whether we will or no. We are all a part of life's forces, whether we know it or not. Be as humble as you like, you are still a person of influence, if not by your own choosing, then often by God's decree. It may be only a smile or a simple kindness that you have given to a little child, but it starts agencies you little dream of; or it may be some selfishness or lack of honor, some weakness in you that sets in motion a long train of hurtful and sad influences or circumstances. For all life is connected, and whether you wish it or not your life affects other lives.—Anna B. McCall.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the Journal in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, George M. Beringer, 501 Federal Street, Camden, N. J.

ÆTHER ACETICUS

Acetic Ether Ethyl Acetate

A liquid containing not less than 96 percent by volume of Ethyl Acetate ($C_4H_8O_2$ or $CH_3CO \cdot OC_2H_5 = 88.06$), the remainder consisting of alcohol and a little water. Keep it in well-stoppered bottles, in a cool and dark place, remote from lights or fire.

Acetic Ether is a transparent, colorless liquid, of a fragrant and refreshing, slightly acetous odor, and a peculiar acetous and burning taste.

Specific gravity: 0.883 to 0.895 at 25° C.

One mil of Acetic Ether is soluble in about 10 mils of water at 25° C.; miscible with alcohol, ether, fixed and volatile oils.

It does not immediately redden blue litmus paper.

Boiling-point: from 72° to 77° C.

Acetic Ether is readily volatilized, even at a low temperature. It is inflammable, burning with a yellowish flame and an acetous odor.

Upon evaporating 10 mils of Acetic Ether no weighable residue remains.

On allowing 10 mils of Acetic Ether to evaporate spontaneously from clean, odorless blotting paper, the final odor does not resemble that of pineapple (*butylic* and *amylic derivatives*).

Pour carefully 2 mils of Acetic Ether on 10 mils sulphuric acid; no dark ring is developed at the point of contact of the two layers within fifteen minutes (*readily carbonizable organic impurities*).

Mix 20 mils of Acetic Ether with a solution of 20 Gms. of potassium hydroxide in 50 mils of distilled water, allow the mixture to stand, agitating occasionally, or heat it gently under a reflux condenser, until a homogeneous liquid results, and then distil about 25 mils. The distillate complies with the U. S. P. requirements in the test for Methyl Alcohol described under Alcohol.

Shake 25 mils of Acetic Ether in a graduated tube, with 25 mils of water just previously saturated with Acetic Ether; upon separation the ethereal layer measures not less than 24 mils (undue proportion of *alcohol* or *water*).

CALCII LACTOPHOSPHAS

Calcium Lactophosphate

A mixture of calcium lactate, acid calcium lactate, and about 3 percent of calcium phosphate.

Calcium Lactophosphate occurs in white granules or as a white powder, without odor.

It is soluble in water, almost insoluble in alcohol.

Its aqueous solution is acid to litmus.

The addition of ammonium oxalate T. S. to an aqueous solution of Calcium Lactophosphate produces a white precipitate insoluble in acetic acid, but soluble in hydrochloric acid.

Add 10 mils of diluted sulphuric acid and 5 mils of potassium permanganate T. S. to 5 mils of an aqueous solution of Calcium Lactophosphate (1 in 20) and gently warm the mixture; the odor of acetaldehyde is evolved.

Silver nitrate T. S. or ammonium molybdate T. S. produces in an aqueous solution of Calcium Lactophosphate (1 in 20) yellow precipitates.

Mix 0.5 Gm. of Calcium Lactophosphate with 5 mils of sulphuric acid; not more than a slight coloration results (*readily carbonizable impurities*).

Ten mils of an aqueous solution of Calcium

Lactophosphate (1 in 100) mixed with 1 mil of diluted hydrochloric acid does not at once become turbid on the addition of a few drops of barium chloride T. S. (*sulphate*).

Another portion of 10 mils of the aqueous solution (1 in 100) when mixed with a few drops of nitric acid yields not more than an opalescence on the addition of a few drops of silver nitrate T. S. (*chloride*).

The aqueous solution of Calcium Lactophosphate (1 in 50) does not respond to the U. S. P. test for Heavy Metals.

Mix 0.2 Gm. of Calcium Lactophosphate with 1 Gm. of potassium nitrate, ignite the mixture cautiously in small portions at a time until the carbonaceous matter is all or nearly all burned off, then add to the residue 20 mils of diluted sulphuric acid and evaporate the mixture until fumes of sulphuric anhydride are evolved. The residue complies with the U. S. P. requirement for arsenic.

Dissolve 1 Gm. of Calcium Lactophosphate and 2 Gms. of ammonium chloride in 75 mils of distilled water, heat the solution to boiling, and add an excess of ammonium oxalate T. S. (about 20 mils). Allow the precipitate to subside completely, then filter and supersaturate the filtrate with ammonia water; not more than a slight turbidity is produced (*magnesium*).

LITHII SALICYLAS

Lithium Salicylate

Lith. Sal.

It contains, when dried to constant weight at 120° C., not less than 98.5 percent of ($LiC_7H_5O_3 = 143.98$). Preserve it in well-closed containers, protected from heat and light.

Lithium Salicylate occurs as white or grayish-white powder; deliquescent in a moist atmosphere; odorless; taste sweetish.

Very soluble in water and alcohol.

When heated, the salt is decomposed, emitting the odor of phenol, and finally leaving a residue of lithium carbonate and carbon. It imparts a crimson color to a non-luminous flame.

The aqueous solution (1 in 20) is neutral or slightly acid to litmus, and when freshly made is colorless (*iron and organic coloring matters*), and does not effervesce upon the addition of diluted acids (*carbonate*).

Copper sulphate T. S. added to an aqueous solution of the salt (1 in 20) produces a bright green color.

Add a few drops of ferric chloride T. S. to an excess of an aqueous solution of the salt (1 in 4), a deep red color is produced. In dilute solution of the salt (1 in 100) ferric chloride T. S. produces a deep violet-blue color.

Hydrochloric acid added to an aqueous solution of the salt (1 in 20) produces a voluminous white precipitate of salicylic acid.

Dissolve 0.7 Gm. of the salt in 10 mils of distilled water, add an excess of hydrochloric acid and filter; evaporate the filtrate almost to dryness on a water-bath in a 50-mil Erlenmeyer flask, and then add 10 mils of amyl alcohol and cautiously heat until the lower aqueous layer is evaporated; then add 3 drops of hydrochloric acid and boil the liquid for three minutes; the insoluble residue weighs not more than 0.005 Gm. (limit of *other alkalies*). The removal of the water from the amyl alcohol mixture is facilitated by passing a current of air through the hot solution.

Dissolve 1 Gm. of the salt in 50 mils of distilled water, precipitate the salicylic acid by the addition of hydrochloric acid, and filter; the filtrate does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Assay.—Weigh accurately about 2 Gms. of Lithium Salicylate, previously dried to constant weight at 120° C., incinerate it in a porcelain crucible, and proceed by the method directed by the U. S. Pharmacopœia for the Assay of Alkali Salts of the Organic Acids. It shows not less than 98.5 percent $LiC_7H_5O_3$.

Each millilitre of half-normal sulphuric acid V. S. used corresponds to 0.07199 Gm. of $LiC_7H_5O_3$. Each gramme of Lithium Salicylate, previously dried at 120° C., corresponds to not less than 13.7 millilitres of half-normal sulphuric acid V. S.

MALVÆ FOLIA

Mallow Leaves

Malv. Fol.

The dried leaves of *Malva sylvestris* Linné or *Malva neglecta* Wallroth (Fam. *Malvaceæ*).

Leaves of *Malva sylvestris*, petiolate with petioles up to 10 cm. long, orbicular or reniform, slightly truncate or cordate at the base, 10 to 11 cm. long, 15 to 20 cm. wide, with three to seven shallow, angular or rounded lobes, venation palmate, margins crenate-dentate pubescent on both sides.

Leaves of *Malva neglecta*, with petioles up

to 20 cm. in length, orbicular up to 8 cm. wide, base deeply cordate, five to seven shallow rounded lobes, venation palmate, margins with rounded blunt teeth, pubescence more scant than in *M. sylvestris*.

Inodorous; on chewing it becomes very mucilaginous, taste bland.

Leaves showing brown fungous growths of *Puccinia Malvacearum* Montagne must not be used.

Examined under the microscope, sections show the epidermis containing mucilage cells; numerous stomata on both surfaces, each with three or four neighboring cells; trichomes of three distinct types, small, short-stalked glandular hairs, single, large one-celled curved hairs with thick walls and compound hairs in groups of two- to six-celled stellate hairs (the latter especially numerous in *M. sylvestris*); palisade tissue of one or two rows of cells, the mesophyl of three or four rows; the parenchyma containing calcium oxalate in rosette crystals and numerous mucilage cells, which are likewise present in the tissue of the veins; veins with collateral bundles with the sieve tissue toward the lower surface and collenchyma above.

The powder is light green and under the microscope exhibits the characteristic hairs, mucilage cells, epidermis with stomata, and rosette crystals of calcium oxalate.

Malva leaves yield not more than 16 percent of ash.

MANGANI SULPHAS

Manganese Sulphate
Mang. Sulph.

Crystallized Manganese Sulphate containing not less than 62 percent nor more than 68 percent of ($MnSO_4 = 151$).

Manganese Sulphate occurs as pale rose-colored, translucent, tetrahedral prisms; slightly effervescent when exposed. Odorless; taste slightly bitter and astringent.

1 Gm. dissolves in about 1 mil of water at 25° C. and in about 0.6 mil of boiling water; insoluble in alcohol.

The aqueous solution of the salt (1 in 20) is neutral or slightly acid to litmus. It yields with ammonium sulphide T. S. a salmon-colored precipitate soluble in dilute acids; and with barium chloride T. S. a white precipitate insoluble in hydrochloric acid.

Mix a fragment of Manganese Sulphate with a small amount of sodium hydroxide and fuse the mixture, it yields a green mass which dissolves in water to a green solution.

To 20 mils of an aqueous solution of the salt (1 in 100), add a few drops of chlorine water, boil out the excess of chlorine and cool, it is not colored red by potassium sulphocyanate T. S. (*Iron*).

The addition of a few drops of silver nitrate T. S. to 10 mils of an aqueous solution of the salt (1 in 100) previously mixed with a few drops of nitric acid does not at once produce more than an opalescence (*chlorides*).

An aqueous solution of the salt (1 in 50), slightly acidulated with hydrochloric acid, does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Completely precipitate the manganese from an aqueous solution of 1 Gm. of the salt by the addition of ammonium carbonate T. S. and filter; the filtrate evaporated and gently ignited leaves a residue weighing not more than 0.005 Gm. (limit of other *salts* or *of the alkalies*).

A solution of 1 Gm. of the salt and 1 Gm. of sodium acetate in 10 mils of distilled water, to which a few drops of acetic acid have been added, is not affected by hydrogen sulphide T. S. (*zinc*).

Assay.—Dissolve about 0.5 Gm. of Manganese Sulphate, accurately weighed, in 100 mils of distilled water, add 10 mils of ammonia water and 30 mils of solution of hydrogen dioxide, and boil the mixture until the precipitation is complete. Transfer to a filter and wash the precipitate with distilled water until the filtrate ceases to give a precipitate with barium chloride T. S., then dry the filter and precipitate, and incinerate these, first at a low heat and then at a strong red heat, until the weight is constant. The residue of mangano-manganic oxide (Mn_3O_4) so obtained corresponds to not less than 31.3 percent nor more than 34.3 percent of the weight of the salt taken.

Each gramme of mangano-manganic oxide is equivalent to 1.979 Gm. of $MnSO_4$.

POTASSII SULPHAS

Potassium Sulphate.
Pot. Sulph.

It contains when dried to constant weight at 100° C. not less than 99 percent of ($K_2SO_4 = 174.27$).

Potassium Sulphate occurs as hard, colorless, translucent, six-sided, rhombic prisms terminated by pyramids, or a white powder; permanent in the air. Odorless; taste saline, somewhat bitter.

1 Gm. dissolves in 10 mils of water at 25° C., and in 5 mils of boiling water; insoluble in alcohol.

When heated the crystals decrepitate. At a bright red heat the salt fuses, and at a white heat partial decomposition occurs.

The aqueous solution of the salt is neutral to litmus.

A saturated aqueous solution of the salt yields a white, crystalline precipitate with excess of sodium bitartrate T. S.

An aqueous solution of the salt (1 in 20) yields with barium chloride T. S. a heavy white precipitate, insoluble in hydrochloric acid.

An aqueous solution of Potassium Sulphate (1 in 50), slightly acidulated with hydrochloric acid, does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Five mils of an aqueous solution of the salt (1 in 25) meets the requirement of the U. S. Pharmacopœia Test for Arsenic.

Assay.—Dissolve about 0.6 Gm. of Potassium Sulphate dried to constant weight at 100° C., accurately weighed, in 100 mils of distilled water, acidulate the solution with hydrochloric acid and heat it to boiling. Gradually add an excess of barium chloride T. S., and heat for thirty minutes on a water-bath, collect the precipitate of barium sulphate on a filter, wash it with distilled water until silver nitrate T. S. fails to produce an opalescence in 2 mils of the filtrate previously acidulated with nitric acid. Dry the precipitate, ignite and weigh the residue. It corresponds to not less than 99 percent of K_2SO_4.

Each gramme of Potassium Sulphate corresponds to not less than 1.328 Gm. of $BaSO_4$.

SCOPARIUS

Scoparius

Scopar. Broom Top

The dried top of *Cytisus Scoparius* (L) Link (Fam. *Leguminosæ*).

Thin, flexible, branched twigs, 2 to 3 mm. thick, with five angles; externally dark green, nearly glabrous, with numerous reddish-brown cork patches; internally yellowish; fracture short-fibrous, that of thicker pieces tough and splintery; upper leaves, sessile, often only 1-foliolate, obovate, present in small amount or absent.

Odor slight, on bruising more distinct and peculiar; taste disagreeable, bitter.

Scoparius yields not more than 5 percent of ash.

HARRISON LAW DECISION RELATING TO FILLING OF PRESCRIPTIONS ENDORSED

The officials of the Treasury Department, after further consideration of the controverted questions regarding Treasury decisions 2213 and 2244, involving details of the Harrison Anti-narcotic Law, advise that the Internal Revenue Bureau has received communications from high physicians and medical organizations in the country emphatically indorsing the position taken by the Internal Revenue office and the Treasury Department in the matter of refilling prescriptions, which was denied in Treasury decision 2213.

It is stated that these communications from medical men and organizations take the position that the authorizing of the refilling of prescriptions containing *even minimum* quantities of narcotic drugs would do more to encourage the drug habit than any other action that might be taken under the law. They protest, also, against the continuation of the exemption in section 6 of the law, and say that, next to permitting the refilling of prescriptions, the indiscriminate sale of medicinal compounds containing habit-forming quantities of these drugs is a weak feature of the law and will be helpful in encouraging the forming of drug habits among the people.

The department officials decline to make public the names of the organizations and physicians who take this position, stating that the communications were addressed to the department without any intimation that a public discussion of the matter is desired.

COUNCIL BUSINESS

Council Letter No. 1 will be found in October number, p. 1271.

A. PH. A. COUNCIL LETTER NO. 2.

PHILADELPHIA, PA., September 22, 1915.

To the Members of the Council:

At the meeting of the Council at San Francisco, held August 13, 1915, Professor Julius A. Koch was elected Reporter on the Progress of Pharmacy, to succeed Professor C. Lewis Diehl.

Following this, there was given in Council Letter No. 2 a statement by Professor Julius A. Koch, which by reason of Motion 25 having carried, is omitted.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 3.

PHILADELPHIA, PA., September 27, 1915.

To the Members of the Council:

Motion No. 3 (*Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy with Salary, etc.*). Moved by W. C. Alpers, seconded by G. M. Beringer, that Prof. C. Lewis Diehl be given the title of Emeritus Reporter on the Progress of Pharmacy, at an annual salary of six hundred dollars, and be made a member of the Council, ex-officio. (Withdrawn.)

Motion No. 4 (*Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy without Salary, etc.*). Moved by H. M. Whelpley, seconded by Charles E. Caspari, that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy without salary, and made an ex-officio member of the Council. (Ruled out of order.)

J. W. ENGLAND,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 4.

PHILADELPHIA, PA., September 27, 1915.

To the Members of the Council:

Motion No. 1 (*Conference of Committee on National Formulary*) has received a majority of affirmative votes. The appropriation stated therein has been approved by the Committee on Finance.

Motion No. 2 (*Election of Members; Applications Nos. 1 to 5 Inclusive*) has received a majority of affirmative votes.

Under date of September 19, the following communication was received from Fabius C. Godbold:

"Your favor of the 7th inst. is received, and it gives me sincere pleasure to learn that I was elected to the high position of Honorary President of the American Pharmaceutical Association by the Council at the San Francisco meeting. Not having attended an annual meeting for several years, I feared that I would be dropped from the Council and forgotten, but this shows me that I am still with the members of the Association in spirit at least. I hope I may be able to attend the next annual meeting, and show, by my presence, my deep appreciation of the very high honor conferred upon me.

"May the A. Ph. A. 'live long and prosper' is my earnest wish!"

The Massachusetts College of Pharmacy, through its Dean, Dr. Theo. J. Bradley, has presented to the Association a considerable number of duplicate volumes of the Proceedings of the A. Ph. A., including many old and rare volumes. The Association is the recipient, also, of a similar gift from the National College of Pharmacy of the George Washington University, through Dean Kalusowski. General Secretary Day writes: "I have received from Dr. Kalusowski a good-sized packing-case filled with duplicate volumes of the Proceedings for presentation to the Association. Many of these are original packages as sent out by members at that time and subsequently turned over to the college. Many of these are original packages as sent out by Professor Maisch as Permanent Secretary. They were sent to Washington members at that time and subsequently turned over to the college. Many of these volumes are old and rare numbers." The volumes have been sent by General Secretary Day to the Lloyd Library for storage.

It is fitting that a vote of thanks be tendered the donors, and the following motion is offered:

Motion No. 5 (*Donation of A. Ph. A. Proceedings*). Moved by W. B. Day, seconded by J. W. England, that a vote of

thanks be passed to the Massachusetts College of Pharmacy and the National College of Pharmacy of the George Washington University for their very generous donation of A. Ph. A. Proceedings of the Association.

Otto Raubenheimer, Chairman of the Committee on Recipe Book, reports the death of John Roemer, of White Plains, N. Y., on August 20, 1915, who was elected a member of the Committee at San Francisco by the Council on August 13, 1915, term to expire in 1918. He suggests as a successor Clarence G. Spalding, of the Spalding Drug Company, 89 Church Street, New Haven, Conn. Mr. Spalding has been a member of the Association since 1910.

Motion No. 6 (Election of Clarence G. Spalding as a Member of the Committee on Recipe Book, Term Expiring in 1918). Moved by Dr. F. E. Stewart, seconded by J. W. England, that Clarence G. Spalding be elected a member of the Committee on Recipe Book, term to expire in 1918, to succeed John Roemer, term to expire in 1918.

The following resolutions passed by the National Association of Retail Druggists at its recent annual convention and sent to General Secretary Day are submitted for consideration, or reference to the Committee on National Formulary, as the Council may desire:

"*Resolved,* That we consider that the liquor question should not influence the sound judgment, wisdom and intelligence of the Revision Committee of the United States Pharmacopœia; and be it further

"*Resolved,* That we petition the revisers of the National Formulary to include in the next edition of that standard work monographs on whisky and brandy, containing satisfactory descriptions and tests for the identification of whisky and brandy suitable for medicinal use; and be it

"*Resolved,* That we ask the Board of Trustees of the United States Pharmacopœia to investigate fully the rumors which are afloat relative to the action of the Committee on Revision in deleting these two substances.

"*Resolved,* That the National Association of Retail Druggists recommend to the Committee on Revision of the National Formulary that it include in its next edition at least two of the formulas authorized by the Bureau of Internal Revenue for denaturizing alcohol to render it suitable for rubbing purposes and tax-free.

Motion No. 7 (Election of Members). You are requested to vote on the following applications for membership:

No. 6. Andrew L. Stroup, Monte Vista, Col., rec. by G. D. Timmons and E. H. Wisner.

No. 7. George Wm. Moschel, 120 E. St. Paul St., Spring Valley, Ill., rec. by William B. Day and E. N. Gathercoal.

No. 8. John A. Roddy, M.D., Philadelphia College of Pharmacy, Philadelphia, Pa., rec. by George M. Beringer and J. W. England.

No. 9. William P. Lorsch, Bruce, S. D., rec. by E. C. Bent and D. F. Jones.

No. 10. Arthur Lawrence Theodore Jorgensen, 1026B Shotwell St., San Francisco, Cal., rec. by Val. Schmidt and William B. Day.

No. 11. Willis Henry Alpers, 1033 Third St., San Bernardino, Cal., rec. by Carl F. J. Dyna and William C. Alpers.

J. W. ENGLAND,
Secretary of Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 5.

PHILADELPHIA, PA., October 4, 1915.

To the Members of the Council:

With reference to the resolutions from the N. A. R. D., submitted in Council Letter No. 4 (p. 8), Frank H. Freericks writes, under date of September 30, 1915, as follows:

"I have read with great interest Council Letter No. 4, and particularly that part which refers to the resolutions offered by the National Association of Retail Druggists pertaining to the omission of brandy and whisky from the new Pharmacopœia. It appears to me that this is a question which is particularly within the province of the National Association of Retail Druggists to raise, and that it would be but a part of wisdom and justice for the Council to take definite action, making plain with reference to it that such matter is appreciated and always assured of most earnest consideration. The resolutions as presented by the N. A. R. D. have my most hearty approval.

"Some months ago the public press carried a rather sensational article emanating from a member of the Revision Committee who sought to convey the impression that brandy and whisky had been omitted from the Pharmacopœia in order to serve the cause of prohibition, which said person seems strongly to advocate. If the newspaper articles in question correctly quoted the per-

son to whom I refer, it would seem that pharmaceutical and therapeutic value might cease to be a controlling factor in deciding what may or may not be contained in the Pharmacopœia.

"In order to bring this matter properly before the Council, I move that the four separate resolutions as submitted by the National Association of Retail Druggists be also adopted by Council, substituting the name of the Council of the American Pharmaceutical Association for that of the National Association of Retail Druggists wherever necessary. Of course, this includes the one pertaining to denatured alcohol."

Under date of October 1, 1915, Vice-Chairman Scoville, of the Committee on National Formulary, writes that he received the "N. A. R. D. Resolutions" from the N. A. R. D. Office, date of September 21, 1915, but with no intimation that the resolutions had been sent, also, to the Council or officers of the A. Ph. A. Hence he prepared a bulletin on the subject, which he transmitted to the members of the Committee on National Formulary for their consideration.

The special committee to inquire into the matter of fire insurance for the property of the A. Ph. A. located in the Lloyd Building, F. H. Freericks, Chairman, reports progress and states that a final report will be submitted by the committee as soon as the first insurance rate for the contents of the building can be obtained.

J. W. ENGLAND,
Secretary of Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 6.

PHILADELPHIA, PA., October 16, 1915.

To the Members of the Council:

The vote of the Council on Motion No. 3 (Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy, at an annual salary of six hundred dollars, and ex-officio member of the Council) has not been called, and the motion has been withdrawn by W. C. Alpers, who made it, and G. M. Beringer, who seconded it.

Motion No. 8 (Tabling Motion No. 4 of Council Letter No. 3). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Motion No. 4 be laid on the table. (Ruled out of order.)

Motion No. 9 (Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy and ex-officio member of the Council. (Ruled out of order.)

Motion No. 10 (Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that the balance of the honorarium voted Professor Diehl, specifically, for work done on the National Formulary, Fourth Edition, be paid at once, under the conditions of the offer submitted above by Hy. P. Hynson. This motion conflicts with the method of payment of honorarium provided for in action of Council at San Francisco on August 13, 1915, when it was decided that the honorarium "be paid in two instalments, one instalment of $500 at once, and the other during the year 1916." Presumably, the mover and seconder of this motion wish that the previous action of the Council referred to be reconsidered in so far as relates to the payment of the second instalment of $500; and if there is no objection by the Council, this will be done. (Ruled out of order.)

An alternative motion to *Motion No. 10 (On Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl)* is offered by G. M. Beringer and seconded by Dr. F. E. Stewart, as follows:

"*Motion No. 11 (Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl).* Moved by G. M. Beringer, seconded by Dr. F. E. Stewart, that the action of the Council at San Francisco in deciding 'that an honorarium be voted to Prof. C. Lewis Diehl for his work on the National Formulary, Fourth Edition, to be paid in two instalments, one instalment of $500 at once, and the other during the year 1916,' be reconsidered in so far as relates to the second instalment of $500, and that this latter be paid as soon as, in the judgment of the Treasurer and the Committee on Finance, the condition of the Treasury and the interests of the Association will permit."

J. W. ENGLAND,
Secretary of Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 7.

PHILADELPHIA, PA., October 27, 1915.

To the Members of the Council:

Motions No. 5 (Donation of A. Ph. A. Proceedings), No. 6 (Election of Clarence G. Spalding as a Member of the Committee

on Recipe Book, Term Expiring 1918), and *No. 7* (*Election of Members; Applications Nos. 6 to 11 Inclusive*), have each received a majority of affirmative votes.

Points of order have been raised regarding Motions Nos. 4, 8, 9, 10, and 11 of Council Letters Nos. 3 and 6, and the Chairman has ruled on these.

Motion No. 4.—Moved by H. M. Whelpley, seconded by C. E. Caspari, that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy without salary and made an ex-officio member of the Council.

Motion No. 8.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Motion No. 4 be laid on the table.

Motion No. 9.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy and ex-officio member of the Council.

Motion No. 10.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that the balance of the honorarium voted Professor Diehl, specifically, for work done on the National Formulary, Fourth Edition, be paid at once, under the conditions of the offer submitted by Hy. P. Hynson.

Motion No. 11.—Moved by G. M. Beringer, seconded by Dr. F. E. Stewart, that the action of the Council at San Francisco in deciding "that an honorarium be voted to Prof. C. Lewis Diehl for his work on the National Formulary, Fourth Edition, to be paid in two instalments, one instalment of $500 at once, and the other during the year 1916," be reconsidered in so far as relates to the second instalment of $500, and that this latter be paid as soon as, in the judgment of the Treasurer and the Committee on Finance, the condition of the Treasury and the interests of the Association will permit.

The points of order received on above motions were referred to Chairman Eberle, who decides as follows:

My rulings are:

(1) *Ruling on Motion No. 4.*—It becomes my conscientious duty, as I see it, to sustain the protest, and I therefore rule that the office of Emeritus Reporter cannot be created in the manner attempted.

Article V of our Constitution provides an easy method for its amendment. This readily opens the way for legally creating the office of Emeritus Reporter and providing proper recognition for the splendid services of our worthy former Reporter.

(2) *Ruling on Motion No. 8.*—Out of order, because Motion No. 4 is not in order.

(3) *Ruling on Motion No. 9.*—Out of order. Subject covered by ruling on Motion No. 4.

(4) *Ruling on Motion No. 10.*—Out of order, because motion was offered subject to no objection to reconsideration of action of Council at San Francisco on August 13, 1915, and objection has been made.

(5) *Ruling on Motion No. 11.*—In order. Objections to reconsideration not well founded. It is true that the sessions of organized bodies are governed by parliamentary law and ordinarily a motion to reconsider must be made by one who voted in favor of the original motion; but it must be recognized that the conduct of the business of the Association by mail is the equivalent of its conduct by annual meetings; that it is not possible for all the members of the Council to be present at the annual meetings, and that members of the Council should not be deprived of their rights of membership if not present at the annual meetings.

Chapter VIII, Article 11, is quite specific on this point. I quote as follows:

"In all questions arising before the Council or its committees, and which can be disposed of by a positive or negative vote, the chairman of the Council, or the chairman of the committee, *may take the vote of their respective bodies in writing, and the same shall have the same force and effect as if the members had been personally present,* a majority of the votes cast being considered sufficient to decide a question."

This is tantamount to saying that a vote by mail is equivalent to a vote in annual meeting.

Mr. Beringer was not present at San Francisco when the original motion was voted upon, on August 13, 1915, and could not vote for or against it. His motion does not change the intent of the San Francisco action except the greater flexibility to the time of paying the second instalment. The ruling might be different had the action of the Council at San Francisco been approved by the Association in general session, but the Council action was in the year 1915–16, and not 1914–15, and hence will come up for approval in the 1915–16 annual meeting. Therefore its consideration is still in the hands of the Council.

It may be urged that if Motion No. 10 is out of order Motion No. 11 is out of order,

also. But the conditions are different. Motion No. 11, with its request for reconsideration, was not offered "subject to objection," as was motion No. 10, neither was it offered as a substitute motion; it was offered as an alternative motion,—that is, as one of two motions.

I rule that Motion No. 11 is entirely in order.

The following communication was received from Frank H. Freericks, E. H. Thiesing, and Theo. D. Wetterstroem, Special Committee on Insurance of Property of A. Ph. A. Stored in the Building of Lloyd Brothers, at Cincinnati:

"The special committee charged with the duty to determine the need for insurance on the property of the Association as located in the building of Lloyd Brothers at Cincinnati begs leave to report as follows:

"*First.*—We find the Association property to be splendidly taken care of in the building of Lloyd Brothers, located at the southeast corner of Elizabeth and Mound Streets.

"*Second.*—The building in question is of solid brick and mill construction. It is a most substantial building. It is used as a warehouse or stock-house, in which there are stored principally vegetable drugs and Lloyd Library publications and documents. In the lower story rear of the buildings are located the grinding mills, which are operated by electricity, and only at that place is fire for heating purposes used. Said part of the building is separated from the rest by a solid brick wall. The surroundings or exposures to the building are good, with a possible exception of one small frame exposure.

"*Third.*—We were given every opportunity to go through the entire building and to have a complete understanding through the courtesy of Professor Lloyd, and find that the firm of Lloyd Brothers do not carry any insurance on their property contained in the building. The building cannot in any manner be considered as fire-proof. The committee is unanimously of the opinion that if they had property of their own of value contained in the building, that then they would carry insurance on it.

"*Fourth.*—The insurance agency of Joseph T. Dillhoff has been kind enough to have the building re-rated, and we learn that the rate on contents is 1.43, or $14.30 per thousand, indicating of itself that the risk is regarded to be of more than ordinary hazard. If insurance is desired, the property being of a special nature, it will be required to agree upon its value, so that in case of loss there can be no dispute as regards values."

General Secretary Day states that:

"The appropriation for the Year Book in the Budget of 1915 was $2500.00. The expense has been $3000.95. Accordingly, the Finance Committee has approved an additional appropriation of $500.95 to cover the expense of the Year Book, Volume 2, and Prof. J. A. Koch moves, and I second, the granting of such an appropriation."

The number of reading pages in the Year Book of 1913, recently issued, was about eight percent more than the previous book, and the number of books printed was eleven percent more.

This motion will be regarded as *Motion No. 12 (Appropriation of $500.95 to Cover Expenses of 1913 Year Book)*.

At the San Francisco meeting of the Council held August 13, 1915, Mr. C. Mahlon Kline was elected Local Secretary for 1916. Mr. Kline writes in relation thereto as follows:

"Council of the American Pharmaceutical Association.

"Gentlemen:

"I have been officially advised of my election as Local Secretary of the American Pharmaceutical Association for 1916, and I have delayed answering the notification, hoping that I could see my way clear to accept service, but the constantly-increasing pressure of my business interests bids me pause, and compels me to decline the service.

"It is hardly necessary for me to add that I deeply appreciate the honor conferred, and stand ready at all times to do what I can for the American Pharmaceutical Association. Your organization represents the highest ideals in American pharmacy, and my best wish is that its membership may largely increase and its influence for good become widespread.

"Very truly yours,

"C. Mahlon Kline.

"Philadelphia, October 26, 1915."

If there is no objection, Mr. Kline's declination will be accepted.

Motion No. 13 (Election of Local Secretary for 1916). Moved by C. A. Mayo, seconded by G. M. Beringer, that Charles Holzhauer, of Newark, N. J., be elected Local Secretary for 1916.

Motion No. 14 (Authorizing Purchase of

Bond from Ebert Prize Fund). Moved by J. A. Koch, seconded by W. B. Day, that the Treasurer of the Association be authorized to purchase a $1000 St. Louis, 4 percent, 1928 registered bond at 98½, as an investment, from the Ebert Prize Fund. (Motion withdrawn.)

Motion No. 15 (Election of Members). You are requested to vote on the following applications for membership:

No. 12. Mrs. Mary Leinbaugh Smith, Waverly, Kan., rec. by William B. Day and C. M. Snow.

No. 13. Harry Kolsch, 202 Harrison St., Leadville, Col., rec. by George C. Whitmore and Robert H. McKenzie.

No. 14. J. Laurence Randles, Granite Falls, Wash., rec. by C. W. Johnson and Edith Hindman.

No. 15. Leon Ralph Hess, 127 University St., West Lafayette, Ind., rec. by C. B. Jordan and Charles O. Lee.

No. 16. Glenwood Borders, 127 University St., West Lafayette, Ind., rec. by C. B. Jordan and W. F. Gidley.

No. 17. Arthur James Winters, 522 Pleasant St., Oak Park, Ill., rec. by William Gray and William B. Day.

No. 18. David Thomas Briles, 124 Hay St., Fayetteville, N. C., rec. by W. W. Horne and E. V. Howell.

No. 19. Rudolph Breves, 684 Sumner Ave., Newark, N. J., rec. by Hugo Kantrowitz and Robert S. Lehman.

No. 20. Paul Clarence Laurence, 195 Exchange St., Rochester, N. Y., rec. by Eugene L. Maines and Hilton F. Snider.

No. 21. Frontis Lentz, Mooresville, N. C., rec. by E. F. Kelly and H. M. Whelpley.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 8.

PHILADELPHIA, PA., October 30, 1915.

To the Members of the Council:

The following resolution has been received from the Local Branch of the American Pharmaceutical Association of Washington, D. C.:

"WHEREAS, The Council of the American Pharmaceutical Association has very profitably and wisely largely grown in the number of its members and has become a desirable and effective working body at the annual meetings; and

"WHEREAS, A Council of this size cannot be maintained and its business properly transacted by mail; therefore be it

"*Resolved,* That it is the sense of the Local Branch of the American Pharmaceutical Association of Washington, D. C., that the Council should be authorized to elect three members, who, together with the Chairman and the Secretary of the Council, shall constitute an executive committee, this committee to be empowered to carry on the business of the Association as mapped out, at its annual meeting during the intervals of the said annual meetings."

Motion No. 16 (Executive Committee of the Council). Moved by S. L. Hilton, seconded by M. I. Wilbert, that the above resolution of the Washington Branch be approved by the Council and that the By-Laws of the Council be amended at the next annual meeting to provide for an Executive Committee of the Council with power to carry on the business of the Association along the lines indicated by the Washington Branch.

Discussion is invited. A vote on the motion will be taken in two weeks.

The following resolution has been received from the Local Branch of the American Pharmaceutical Association of Washington, D. C.:

"That the Council be requested to invite Messrs. H. B. Mason, of Detroit; Charles R. Sherman, of Omaha; Charles Caspari, Jr., of Baltimore; F. C. Henry, of Washington, D. C., and L. C. Blakeslee, of St. Louis, to become a commission to look into the financial affairs of the American Pharmaceutical Association, its manner of accounting, its revenues and its expenditures, and report at the next meeting, with such recommendations as this commission may conclude will be advantageous to the welfare and usefulness of the American Pharmaceutical Association."

Motion No. 17 (Commission on the Financial Affairs of the American Pharmaceutical Association). Moved by S. L. Hilton, seconded by M. I. Wilbert, that the above resolution of the Washington Branch be approved by the Council.

Discussion is invited. A vote on the motion will be taken in two weeks.

With reference to the resolutions from the N. A. R. D., submitted in Council Letter No. 4 (p. 8), it should be stated that Mr. Freericks's

motion of Council Letter No. 5 (p. 10) has not been seconded.

Charles E. Caspari, however, makes a motion that the "N. A. R. D. Resolutions" be referred to the Committee on National Formulary, as the subject matter is of a technical or scientific character and properly belongs within the scope of work of the Committee on National Formulary. Mr. Caspari's motion is seconded by Dr. F. E. Stewart. It will be regarded as *Motion No. 18 (Referring N. A. R. D. Resolutions to Committee on National Formulary)*.

J. W. ENGLAND,
Secretary of Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 9.

PHILADELPHIA, PA., November 16, 1915.

To the Members of the Council:

Gentlemen:

Motions No. 11 (On Payment of Second Instalment of Honorarium to Prof. C. Lewis Diehl), No. 12 (Appropriation of $500.95 to Cover Expenses of 1913 Year Book), No. 13 (Election of Charles Holzhauer, Newark, N. J., as Local Secretary for 1916), and *No. 15 (Election of Members; Applications Nos. 12 to 21 inclusive)*, have each received a majority of affirmative votes.

Regarding *Motion No. 18 (Referring N. A. R. D. Resolution in Council Letter No. 14 to Committee on National Formulary)*, Frank H. Freericks has raised the question that it is out of order, and the question has been referred to Chairman Eberle for his decision.

In re subject of insuring property of A. Ph. A. stored in the Lloyd Library at Cincinnati, Frederick J. Wulling writes:

"Concerning the report of the special committee on insurance of property of A. Ph. A. stored in the Lloyd Library in Cincinnati, let me say that I am an advocate of insurance protection. The committee states that the building is not fire-proof. I feel that we should insure the property. Possibly Messrs. Lloyd Brothers would prefer to have us do so."

Motion No. 19 (Executive Committee of the Council). Moved by George M. Beringer, seconded by C. H. LaWall, that the proposed action as outlined in the first resolution of the Washington Branch (C. L. No. 8) and in Motion No. 16 be published in the Journal, and that the opinion of the members of the Association thereon be invited, and that final action be taken at the forthcoming meeting at Atlantic City.

Motion No. 20 (On the Financial Affairs of the Association). Moved by George M. Beringer, seconded by C. H. LaWall, that we request our Finance Committee, with a special committee of five members to be appointed by the Chairman of the Council, to make a special study of the available assets and current expenses of the Association and see what suggestions they can make regarding the improving of the financial status of the Association.

Discussion on the two substitute motions above offered is requested. A vote will be called in two weeks.

General Secretary Day writes:

"As one of the party who made the memorable trip to San Francisco, I know that you enjoyed the hospitable treatment accorded to our party by the Denver pharmacists and that you remember with much pleasure the Saturday that we spent in Denver. I happen to know that the Denver pharmacists raised by individual contribution a very considerable sum of money which was expended for the entertainment of the visiting members at that time. It occurs to me that it would be a graceful act on our part to show our appreciation of this hospitable treatment in some manner which would be pleasing to our Denver friends and would be a help to them in the good work which they, through the Denver Branch, are doing for pharmacy and for the American Pharmaceutical Association.

"As you know, one of the activities of the Denver Branch is the collection of a pharmaceutical library, to which a considerable number of accessions by gift have already been received. I have learned from Mr. Nitardy that the Denver Branch possesses nearly a complete set of our Proceedings. The volumes lacking from the set owned by the Denver Branch are the following: 1911, 1872, 1870, and all prior to 1869. I would like to offer a motion in the Council that the Denver Branch be presented with the volumes necessary to complete their set, viz., those for the years 1911, 1872, 1870, 1868, and all prior as far as our stock permits, and that these volumes be presented as a gift from the Association in appreciation of the good work which the Denver Branch is doing for the Association and for pharmacy."

Motion No. 21 (Presentation of Proceed-

ings to Denver Branch). Moved by W. B. Day, seconded by J. W. England, that the volumes of the Proceedings for 1911, 1872, 1870, 1868, and all prior as far as stock permits, be presented as a gift from the Association to the Denver Branch in appreciation of the good work which the Denver Branch is doing for the Association and for pharmacy.

Motion No. 22 (Additional Appropriation of $100 for Printing, Postage, and Stationery). Moved by J. A. Koch, seconded by W. B. Day, that an additional appropriation of $100 be made for the budget item of printing, postage, and stationery; the appropriation is approved by the Committee on Finance.

The item is now exhausted and it is estimated that $100 will be sufficient for the charges against this account until the close of the fiscal year.

Dr. A. R. L. Dohme writes that at the San Francisco meeting a resolution was presented to the Scientific Section by himself and reported favorably to that Section by a committee appointed by its Chairman and adopted, but it has not yet been presented to the Council for approval.

The resolution is as follows:

"WHEREAS, It is generally admitted that commercial progress in Germany in the past two decades has been the result of a hearty and complete coöperation between the scientific and industrial organizations of that country; and

"WHEREAS, All financiers and business men will concede that the application of the science of the university to the practice of the factory will produce similar results in this country; and

"WHEREAS, It is our opinion that the next great stride in our commercial growth will be in the direction of applying our scientific training represented by the university to practical use in our industries; and

"WHEREAS, The factory and the university have stood aloof from one another to the disadvantage of both these many years; therefore be it

"*Resolved*, by the Scientific Section of the American Pharmaceutical Association, That the United States Chamber of Commerce be requested to call a special meeting of representatives of the leading institutions of learning and of leading large manufacturing interests of the country, together with representatives of the leading banking interests of the country, for the purpose of considering ways and means of generating and fostering a spirit of closer coöperation between them than has heretofore existed or now exists."

A motion to approve the above resolution adopted by the Scientific Section is in order.

Editor E. G. Eberle writes that: "On motion of J. D. Turner, seconded by C. E. Caspari, resolutions were adopted in the Scientific Section of the American Pharmaceutical Association as follows:

"*Resolved*, That in order to promote the organic chemical industry of this country, and especially the manufacture of organic synthetic products used in the practice of medicine, a duty should be imposed on all such products, as well as the raw materials entering into composition of such, to the extent of 30 percent *ad valorem* and 7 cents per pound specific.

"It is further resolved that the Congress of the United States be petitioned to enact legislation to this effect."

A motion to approve the above resolution adopted by the Scientific Section is in order.

The following report is submitted:

To the Members of the Council:

Gentlemen:

On behalf of the Committee on Unofficial Standards, I desire to report to the Council that the following additional monographs have been adopted and copy for these has been forwarded to the Editor for publication in the Journal of the American Pharmaceutical Association, in accordance with the instruction of the Council:

Caramel
Chionanthus
Corydalis
Matico
Oleum Betulæ Empyreumaticum Rectificatum
Vanilla

Yours very truly,
GEORGE M. BERINGER,
Chairman.

CAMDEN, N. J., November 6, 1915.

J. W. ENGLAND,
Secretary of Council.

415 N. 33rd St., Philadelphia, Pa.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CINCINNATI.

The regular monthly meeting of the Cincinnati Branch, American Pharmaceutical Association, was held at Lloyd Library, November 23, 1915.

After a short business session, during which the minutes of the first annual meeting were duly approved, President Charles G. Merrell introduced the speaker of the evening, Mr. W. H. Jones, who gave a very exhaustive and comprehensive discourse on "Aspirin and Other Synthetics: Their Uses and Abuses."

Mr. Jones divided most of the synthetics into two classes: namely, antipyretics and hypnotics—the *benzene series,* from which aspirin may be obtained, and the *methane series,* which mostly form synthetics with hypnotic properties. From the *benzene series* the first step is the production of benzoic acid, then the salicylic acid, whereby substitution with acetyl, the product of acetylsalicylic acid is produced. This was discovered in 1858, but patented by the Farben Fabriken, of Elberfeld, as aspirin. Later The Heyden Company produced an acetylsalicylic acid, but the patents on all the different aspirins will expire in 1917.

While the original aspirin and the acetylsalicylic acid are chemically alike, they do not have the same physiological effect, and under the microscope show a decided variance in crystalline form, those of aspirin being acicular and those of acetylsalicylic acid being prismatic with decided blunt ends.

Mr. Jones described the properties of quinine, claiming it to be the antipyretic *par excellence,* and then showed the numerous attempts to produce antipyretics by synthesis, such as methyloxyquinoline, by alkali, quinoline, thermofugin, and others, with the idea of producing new bitter products, also phenylhydrazone, etc.

He spoke of the formation of antipyrin, which, while a good antipyretic, is open to many idiosyncrasies of the patient; also of pyramidone, a derivative of antipyrin, which is claimed to have no toxic effect. On the whole, all antipyretics, obtained from aniline, of which acetanilide, discovered in 1886, is greatly used as an ingredient in headache preparations, are a dangerous class of medicines for the use of the laity, on account of their toxic properties. The speaker illustrated further the formation of acetphenetidine, or phenacetine, accrediting same with the best antipyretic properties, but still having poisonous effects similar to acetanilide, both on the blood and kidneys, the acetanilide being oxidized into aniline, hence its poisonous properties.

On the other hand, while the hypnotics of older times were chiefly alcohol, chloral, etc., the synthetical hypnotics are mainly obtained from the methane series. These may be divided into three classes: first by substitution or presence of chlorine or bromine; second, by alkyl derivatives; or, third, by aldehydes or ketone derivatives.

Mr. Jones was profuse in his illustrations, showing the chemical formation of such products as chloral, butyl chloralhydrate, sulphuric ether, veronal, diethylsulphonic acid, sulphonal, paraldehydes, etc.

The speaker wound up his interesting discourse with the prophetic saying, "The time of synthetics is practically over; now turn to plant drugs for much safer remedies and more gratifying results."

CHARLES A. APMEYER, Secretary.

The regular monthly meeting of the Cincinnati Branch of the American Pharmaceutical Association was held December 14, at Lloyd Library.

After a short business session, during which the Secretary's report was accepted, the

president, Charles G. Merrell, introduced the speaker of the evening, Dr. S. P. Kramer, who chose for his subject, "Alcohol." The lecturer was very emphatic in classing alcohol with the narcotics, pointing out its insidious action by showing the necessarily increased consumption, in order to obtain the same effects.

He cited the historical origin of the name alcohol from the Arabic "Alcol," a substance containing very finely powdered antimony, used for painting eyebrows; and when applied to distillation it meant a very finely divided volatile substance, same being used in religious rites, as well as forming a favorite luxury for causing exhilaration among the upper classes and the rich.

While the production of alcohol, even in domestic economic processes, as in the making of bread, or from grain, potatoes, or beets, is well-nigh universal, the effects of the consumption of same are always narcotic; self-control is lost, speech may be brilliant but foolish, sexual instinct is deadened, the effects upon the individual may be bellicose, morose, or hilarious, and, while the immediate effect is probably stimulating, the after-effect of depression is self-apparent. The speaker noted the relation of alcohol after stating that alcohol was used as an anæsthetic long before ether.

To illustrate the fact that alcohol is not a cardiac stimulant, he says that no modern physician would prescribe alcohol for such purposes. Taking the statistics of a city hospital, where in 1910 in six wards 654 pints of whisky and 150 pints of brandy were consumed, in 1914, in the same six wards, two and three-fourths pints of whisky and no brandy were prescribed.

Alcohol is a food for the body, but that does not justify its use, because the grain from which it is made has more food value than the alcohol; and, while the alcoholic action on digestion is irritant, the alcohol in small doses acts as a stomachic tonic, especially in beer.

Dr. Kramer showed a number of charts and pictures illustrating the depressing effects and decrease of mental activity on inmates of prisons and similar institutions. After the lecture a spirited discussion took place, showing the pros and cons regarding the moderate use of alcohol, participated in by Messrs J. U. Lloyd, F. H. Freericks, C. T. P. Fennel, Theo Wetterstroem, L. Werner, and others.

CHARLES A. APMEYER, Secretary.

NEW YORK.

Minutes of the regular meeting of the New York Branch of the American Pharmaceutical Association, held at the New York College of Pharmacy Building, December 13, 1915. Called to order by President Lascoff at 8:40 P.M.

The minutes of the November meeting were ordered adopted as read.

Treasurer Weinstein's report was received with thanks.

The chairmen of the Committees on Membership and Fraternal Relations, as well as the member of the Council, were absent and no reports were received.

Dr. Diekman, Chairman of the Committee on Progress of Pharmacy, was not present. A letter of regret from him was read by the Secretary, in which the writer promised to incorporate his report with that for the next meeting.

Dr. Anderson, for the Committee on Legislation and Education, reported that there was little of importance going on at the present time. In a general way he called attention to the different legislative activities for the coming year.

Communications from Mr. Thomas F. Main to the President and from the latter to Mr. Charles Holzhauer relative to the next annual meeting of the American Pharmaceutical Association were read and received.

Mr. Charles Holzhauer, the local secretary for the Atlantic City meeting, was present and, upon call from the President, expressed his pleasure in so far as the New York Branch had expressed its willingness to assist him. After hearing a tentative outline of his plans it was decided that the President appoint a committee of five to coöperate with the local secretary and such other committees as might be appointed.

Jacobs Weil, 269 Canal Street, New York City, a member of the parent association, was elected a member of the Branch.

The following applications were received and ordered forwarded to the General Secretary:

Edward Plaut, No. 120 William Street, New York City.

Joseph Goodman, Broadway and Baxter Avenue, Elmhurst, L. I., N. Y.

Frederick A. Leslie, 115 West Sixty-eighth Street, New York City.

F. S. Frankfurter, 807 Courtland Avenue, New York City.

The speaker of the evening, Director Lucius P. Brown, of the Bureau of Food and Drugs of the Department of Health of the City of New York, was then introduced and entertained the members with some exceedingly interesting reminiscences, both instructive and humorous, covering his many years of work along these lines.

After a spirited discussion of the speaker's remarks by Messrs. Diner, Mayer, Weinstein, Hostmann, Lascoff, Gane, and others, a rising vote of thanks was voted the speaker.

President Lascoff appointed the following members as a Committee on Nominations for officers for the coming year, to report at the January meeting:

H. V. Arny, Chairman, Thomas Latham, and B. L. Murray.

JEANNOT HOSTMANN, Secretary.

PITTSBURGH

The second of this winter's series of meetings of the Pittsburgh Branch of the American Pharmaceutical Association was held Friday, December 17. The subject for the evening was "Enzymes of Plants," which was handled in a masterly manner by Dr. J. H. Wurdack, instructor in Latin and assistant to the Chair of Chemistry at the Pittsburgh College of Pharmacy. The lecture was declared by those who were fortunate enough to hear it, one of the most interesting and instructive talks of the several with which Dr. Wurdack has favored the Branch.

After a review of the properties of enzymes, their classification was explained and a number of enzymes discussed in detail; the part played by enzymes in the germination of seeds, in the ripening fruits, in the formation of bark and leaf colors, in the production of odors, and in the general processes of the plant were explained. Those enzymatic processes taking place after the part is removed from the plant to become a drug were especially considered, reference being made to the fact that decided changes usually take place which make the dried drug an individual very different from the living, growing plant. In fact, in Germany and France preparations are now on the market, some even for subcutaneous and intravenous injection, which have been made from drugs in which enzymatic changes were prevented by sterilization. The reason for the fermentation processes which cacao, tea, vanilla, tobacco, etc., are subjected to were taken up and many interesting points brought out.

The resolutions adopted by the National Association of Retail Druggists, protesting against the elimination of whisky and brandy from the forthcoming revised Pharmacopœia, were taken up and discussed by Dr. Julius A. Koch, a member of the Revision Committee, who told in a very interesting manner the various changes of base that the committee had taken on this question from time to time, the last one being the practically even division of the members for and against, with a majority of two favoring deletion. The leaders for and against this action were Dr. H. W. Wiley and George M. Beringer. Each of these champions was satisfied to have whisky and brandy retained, provided his particular brand of standard was accepted, but between the two definitions the contention was finally brought to an end by a vote standing 26 to 24 in favor of deletion. Dr. Koch suggests that no one need worry over there being no standards for these two articles in the Pharmacopœia, as the Agricultural Department and the Internal Revenue Commissioner will see to it that a standard will be provided that producers will be compelled to meet. Dr. Koch also stated that the matter may be taken up by the Committee on National Formulary and a standard for whisky and brandy given in that publication, which is recognized by the courts as authority.

B. E. PRITCHARD, Secretary.

SAN FRANCISCO

The San Francisco Branch of the American Pharmaceutical Association met on Tuesday evening, December 14. President J. L. Lengfeld presided. After the roll-call and the reading of the minutes of the November meeting, the following committees were appointed: Membership, Miss C. M. Roehr, chairman; Education and Legislative, Dr. A. Schneider, chairman. A Welfare Committee, to consist of five members, will be appointed later. Mr. W. D. Bost was unanimously elected second vice-president.

The review of current pharmaceutical literature was followed by an interesting paper on the "Standardization of Aromatic Spirit of Ammonia," by Mr. W. D. Bost. The paper was based on an article in the May number of the Bulletin of the California Board of Health, in which it was stated that 100 mils of this preparation should contain 1.97 grammes of ammonia. The paper showed that the correct amount must be 1.93, the difference being due to the specific gravity

of ammonia water, which had been taken as 1. The preparation, even when kept under the best conditions, showed a deterioriation of about 12 percent in six months.

Mr. C. S. Smith read a paper on "Service in the Prescription Department," in which it was stated that the prescription department could be made as profitable as any other, but it required the best of materials and strict attention to the most minute details. Both contributors were formally thanked by the Branch.

The January meeting will be held on the evening of the 11th, in the office of the Pacific Pharmacist. A demonstration of "Package Finishing" will be given by President Lengfeld. A large attendance is expected.

CLARISSA M. ROEHR, Secretary.

BALTIMORE

A joint meeting of the Baltimore Branch American Pharmaceutical Association and Baltimore Retail Druggists' Association was held in the mezzanine room at the Emerson Hotel, Monday evening, December 13, 1915.

The Joint Committee had been fortunate in securing two unusually able speakers, men who are thoroughly conversant with the subjects they discussed. The subjects and speakers were: "Profitable Advertising for the Retail Druggist," Mr. J. Thomas Lyons, assistant advertising manager of the Baltimore News; "Modern Business Efficiency in the Retail Drug Business," Mr. Douglass Burnett, commercial manager of the Consolidated Gas and Electric Company.

Pharmacy, from the strictly ethical viewpoint, was not considered at the meeting, but the retail drug business and conditions in it were gone into from the standpoint of advertising and efficiency in a thoroughly scientific manner by two men entirely outside of the pale of pharmacy, but experts in their lines. It was a revelation to the many present at the large gathering to see, from the other side of the counter, how their methods of doing business were considered, and to be told what they should and should not do in order to not only be successful but also to even make a living out of their calling.

Mr. Lee Williamson, the president of the Retail Druggists' Association, presided and called on Mr. Neill, the chairman of the Executive Committee of the Branch, to sit with him, and he, in turn, requested Dr. Hynson to do this, as he was the one who had been instrumental in bringing about the joint meeting and had secured the speakers.

Dr. Hynson acted for the Branch and introduced "Tommy Lyons" as the man who had put "Truth" in advertising and who, he said, was not nearly as youthful as his appearance seemed to indicate, for he had known him in the advertising line for at least twenty years, and then said so many complimentary things about him that Mr. Lyons was almost overwhelmed and opened his talk by remarking that in all his career in public speaking he had never received such an introduction or such a start-off and was afraid he would not live up to our expectations. We were then treated to a mildly "Dutch Uncle" talk by a bright Irishman, and from among the many pertinent things said by Mr. Lyons that are applicable to druggists the following have been picked out:

"Most druggists have arrived at the wrong conclusion as to the meaning of advertising, as they seem to think that it represents newspaper space, bill-boards, street-car signs and kindred other publicity mediums, while advertising actually is being done all the time and in our every action and word, and it is the intimate personal advertising that counts immensely for good or bad with the public."

"A nickel spent for a shoe-shine, a dime spent with a laundryman, a quarter spent with a barber, and a half dollar spent with a manicurist could all be charged to good advertising by the average druggist."

"A few dollars spent for paint and better lighting could also be so charged."

"Newspaper advertisements for downtown stores are desirable, but are not a good investment for the neighborhood store."

"Store atmosphere is an important advertisement; go outside, come in, and look at this from the viewpoint of the stranger who comes in contact with it for the first time."

"Would you trade at a store where you were treated like you treat your customers?"

"Find the defects in the store and windows and make them perfect."

A case was cited of a druggist who was playing checkers behind the prescription case with a travelling salesman, who called his attention to the entry of a prospective customer. "Keep quiet, he might go out," was the druggist's response, and he did go out. "Prompt and efficient service is the best kind

of advertisement; do not let the customer go out without getting it."

"A druggist complained because a Greek was opening a brightly-lighted, clean, and cheerful candy, fruit, and soda stand on the opposite corner, and he was afraid he would lose his candy and soda trade. He not only lost that part of it, but he also had to close his store, when the proper use of paint and lighting fixtures would have caused the Greek to have moved elsewhere or even may have prevented him from opening at all."

"In an effort to get more business to offset the forty percent loss in prescription business which has occurred in the past years, druggists have resorted to cutting prices on patents, and the temporary advantage which the first cutter might have enjoyed was lost immediately after the next cutter appeared."

"*Cutting chokes the outlet,* especially as applied to the one-cent sales. Two tubes of shaving cream bought for twenty-six cents do not increase the consumption of shaving cream; it merely chokes the outlet for it till both tubes are used, and the buyer is the only gainer."

Mr. Burnett's talk was along the lines of efficiency as applied to retail business, but particular attention was called to the lack of comprehensive systems of bookkeeping on the part of druggists and their lack of knowledge as to the proportion of profit or loss to cost, and their inability to determine just what proportion of profit it was necessary to get in order to do business properly.

The lack of a community spirit among druggists by means of which they could get together and stop price cutting, cut off worthless accounts, and stop living off each other was emphasized, and it was hoped that some plan along the lines of the Stevens bill could be worked out.

Much emphasis was put on the turn-over, and it was announced that unless this could be done twelve times a year something was wrong.

In the discussion it was brought out that already the National Association of Wholesale Druggists has taken steps to discourage the opening of new stores in localities already served by existing ones, by refusing credit, and considerable blame was attached to it for having encouraged this too much in the past.

It was also noted that they were taking steps to see that proper books were kept by the retailers for their mutual protection.

One druggist brought out very forcibly a good salesmanship practice by stating that when a customer called for an article of which there were two sizes, he invariably wrapped up the larger, unless the smaller was asked for, and even then the larger size was often taken when its economy was pointed out.

Another druggist claimed that the only things which should be sold at cost were postal cards and postage stamps; that the decision should be made that they were or were not to be sold, and that if they were sold they should be sold with a smile and in liberal quantities, so that stamp customers would become regular ones for other lines.

He also brought out the inconsistency of having an ancient city directory on hand, and advocated the last edition or none at all.

WM. J. LOWRY, JR., Secretary.

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association met Tuesday evening, November 16, 1915, with a large audience of pharmacists, physicians, and sanitarians.

Mr. Seward W. Williams presented a paper on "Aerial or Gaseous Disinfection," including a symposium of answers from State health officers to seven questions relating to different phases of the subject.

Mr. Williams began his talk with a definition of the term gaseous disinfection, and gave a short history of the methods employed and substances used for the purpose, and then brought up the question of the value of such disinfection. He presented a letter from Dr. Schroeder, of the New York City Department of Health, explaining why the practice of fumigation after infectious diseases had been so nearly discontinued in New York City and the means now employed to prevent the spread of contagion.

In the symposium replies were had from the health officers of nearly all the states and larger cities, as well as from many men of national reputation as sanitarians.

The seven questions and a summary of the replies are as follows:

1. After what diseases do you think it desirable to fumigate?

Replies to No. 1 may be classified as follows: Favorable to fumigation, 19; partly favorable, 3; unfavorable, 5; doubtful, 3.

2. Do you regard formaldehyde as the

most satisfactory aerial disinfectant? If not, what, in your opinion, is better?

Summary for No. 2: 28 regard formaldehyde as the best gaseous germicide, 2 qualify their approval.

3. Do you think the conclusions reached by Mr. Adams in the Ladies' Home Journal for March (see quotation following) justified?

This was the quotation:

> I am assuming, in what follows, only two points: That you are an adult, and a non-consumptive at present. On that hypothesis:
>
> 1. You have had tuberculosis.
> 2. You have cured yourself of it.
> 3. In the process of curing yourself you have so fortified your body against it that you are safe against "catching" the disease from any other person.
> 4. If you now become a consumptive it will be through a relapse and by your own fault.

Summary for No. 3: Favorable to Mr. Adams's views, 5; partly favorable, 3; unfavorable, 12; doubtful, 5.

4. Even if this new theory of tuberculosis were generally accepted, would it not point to the necessity of fumigation after pulmonary phthisis to protect children?

As nearly as replies to No. 4 can be classified, 17 may be called affirmative, 5 negative, and 8 doubtful.

5. Have you, in your experience, thoroughly satisfied yourself as to whether or not communicable diseases are commonly conveyed by objects handled by the patient? In other words, what rôle do fomites play in carrying infection?

Summary for No. 5: 15 regard fomites as of considerable importance in conveying infection, 7 consider them of secondary importance, but not to be neglected, and 8 regard them as not worth considering.

6. How is it that some sanitarians, who advise burning books handled by a person having a contagious disease, regard the fomite theory, as applied to things generally, so lightly that they do not fumigate the room and its contents?

Nearly all seem to agree that the position referred to is inconsistent.

7. Is not the viability of pathogenic bacteria so influenced by deficiency of light and fresh air, and so affected by atmospheric conditions in general, as to make it unwise to rely upon disease germs shortly succumbing to conditions practically unattainable without fumigation?

Twenty favor fumigation in addition to fresh air and sunshine; three emphasize the value of germicidal solutions; three regard fumigation as of practically no value, and four are doubtful.

Mr. Williams then discussed the logic of gaseous disinfection and its importance. He presented the relative values of formaldehyde and sulphur and their particular uses.

In conclusion he stated:

"A large majority of the state health officers, joining in the symposium, favor a continuance of formaldehyde gas disinfection.

"We should not neglect one cause of spreading communicable diseases (room infection) because we have found another (carriers), whatever the relative importance of the two agencies may be.

"To destroy bacteria, volatilize formaldehyde, without ignition, in warm, moist air.

"To kill insects and vermin, burn sulphur in dry air.

"While, as pharmacists, we should supply trustworthy means for combating communicable diseases, as citizens we should look for their underlying causes and assist in correcting them."

In the discussion that followed the paper Mr. Hugh Craig said: "Slowly but surely public sanitation is changing from a political to a scientific foundation, and every city should have, and will soon have, professionally-trained and well-paid health officers."

Dr. Bernard Fantus called attention to the increasing knowledge regarding the spread of disease by "carriers," and to the fact that clothing and other objects were now known to play so small a part in conveying disease. In fact, the great majority of infections could be directly traced to contact with another person bearing the disease germs.

Dr. R. E. Humphreys then introduced the subject of white mineral oil as a remedy for constipation, and presented a strong argument for the American oil as against the Russian. He said that, whereas the Russian oil consists chemically of members of the naphthalene series, the American oil from the eastern and central states consists entirely of members of the paraffin series, and the California oil is a mixture of the two series. He stated that the Russian oil was somewhat more viscous, its specific gravity ranging from 0.875 to 0.885, while the American oils ranged from 0.850 to 0.865. He discussed the tests for

unsaturated and compound hydrocarbons, and explained why some of these tests were too harsh, and that it was unnecessary for a very good grade of paraffin oil to meet them.

Mr. C. H. Briggs followed Dr. Humphreys and stated that all that was essential for a perfect medicinal mineral oil is that it be bland and tasteless, colorless, medium viscous (not as viscous as the Russian oil, which is almost as thick as castor oil, but not so thin as to favor "leakage"), and be free from unsaturated hydrocarbons. He favored the bromine test for detecting these undesirable hydrocarbons as more reliable than the sulphuric acid test.

E. N. GATHERCOAL, Secretary.

The Chicago Branch of the American Pharmaceutical Association held the December meeting at the College of Pharmacy Building the evening of the 14th, with President Hugh Craig in the chair.

Secretary Gathercoal read a short paper on proposed changes in the Year Book of the Association. He especially urged that some means be adopted by which pharmaceutical abstracts could be presented within a short time after the publication of the original articles. He suggested that the Year Book could be published in instalments during the year, which could be mailed either as supplements to the Journal of the Association or as a separate publication. The paper was discussed, but finally referred to the next meeting for action.

The principal feature of the evening was an illustrated talk by President Craig on "Window Dressing." Mr. Craig classified dressed windows, stating that the most attractive windows were those in which live animals were displayed; next most attractive, those in which some mechanical wonder was in operation; then followed the artistic display, including especially landscapes; the ornate display, including richly-furnished interiors, and the specialty display, in which but one article was exhibited; least attractive was the 5-and-10-cent-store display, in which a great variety of articles were massed.

He stated, however, that the appearance of many Chicago drug-store windows indicated no attempt at any display, and that this waste of the most valuable selling agency in the store was most unfortunate.

The lantern views were instructive and interesting, showing not only different types of window displays, but some of the devices and apparatus used in making displays.

E. N. GATHERCOAL, Secretary.

DETROIT.

The meeting of the Detroit Branch of the American Pharmaceutical Association was held Friday evening, November 19, at the Wayne County Medical Society Building.

The program consisted of two papers on drug store advertising. The first was by Mrs. Margaret R. Burlingame, an expert on advertising.

Mrs. Burlingame's talk was intended to give something definitely tangible. Too often advertising talks are based on "theory," which to the lay mind is interesting from the standpoint of talk, but confusing as to any practical value. Mrs. Burlingame opened her remarks by seemingly apologizing for the lack of the theory of advertising that her talk would contain, but in reality gently rapping over the knuckles the fellows who spend much valuable time talking "theory."

"You know," she quietly suggested, "the real advertising man—the one who turns out the ideas that build business—hasn't any time to *talk* advertising—he's too busy advertising."

"When you listen to a long discussion on the theory of advertising you may say this to yourself: 'That chap is paid for *talking*'—and the more interestingly he talks, and the more often he talks, the more you can add to the amount he gets paid.

"The real advertising man—not the man who sells the agency's service—but the ***real*** advertising man, must be three things. He must be an analyst, a psychologist, a merchandiser.

"He must be able to tear to pieces your product, your market, and your price; and he must be able to build up again; he must know people. This is very important. He must be able to tell you how the people you want to reach think—how they act. He must be able to tell you how to reach these people, and how to make them act; how to create in them a buying desire, and how to connect that buying desire with your particular product. . . .

"Before you, as retailers, start an advertising campaign, you must answer two all-important questions—'What have I to sell?' and 'To whom am I going to sell it?' Then

you must start about to find out the very best ways of selling your product.

"You may think you are selling drugs, when in reality you are selling *service*. Let me give you an example. You are all more or less familiar with the advertising the Schettler Pharmacies have been doing. You might think Mr. Schettler is selling drugs just the same as any drug store, no matter where it is located. But you are wrong. Mr. Schettler sells Service, and sells it with a big S. When we were called in to plan his advertising we searched for something that was different in his plan that could be exploited. We hit upon the idea of making people see a difference between 'Drug Store' and 'Pharmacy,' and we taught them this difference: The drug store as a place where goods were sold, including drugs; the pharmacy where nothing but drugs and high-grade toilet articles were sold. Then we talked service in prescriptions, until we got people where they not only felt absolutely safe in having a Schettler Pharmacy compound their prescriptions, but unsafe unless they did it.

"Please understand that this does not mean that we cornered all the prescription business in Detroit—we didn't spend enough money to do that—but we did show a wonderful increase, and that increase still remains.

"There is a peculiar thing about a pharmacy that specializes in prescription work. Before ever that pharmacy sells a single drug it must first sell *confidence*. And in selling confidence it must exploit its high-grade prescription clerks, its chemists, its pure drugs, its prompt service. So you can see my statement is correct when I say that Service, not drugs, is the thing that is sold.

"And, too, this will show you how necessary it is to ask yourself: 'What am I going to sell?' The second question is equally important in its relation to results: 'To whom am I going to sell it?'

"You would quickly agree that it would be an absurd piece of not only supposed advertising, but common sense, to advertise fur coats in Florida; and yet, so far as results are concerned, the way some advertisers ignore an analysis of their markets is just as absurd. If you are selling prices, don't advertise to high-priced trade. The cut price always gives rise to a doubt in certain mentalities. They are very apt to ask: 'What is the matter with the stuff?' If you are advertising quality and service, you can make your appeal general, but select the mediums that go to the better classes. . . ."

Mrs. Burlingame was interrupted by the question: "When a woman goes into a store and throws down a quarter for a box of laxative bromo-quinine pills, and the clerk hands her back 6 cents, is she pleased—or what is the effect on her?"

"Most emphatically *not!* And right here is the mistake some manufacturers make in merchandising. Into that woman's mind immediately pops the disturbing question: 'I wonder what's *wrong* with them?'—and never again is she quite satisfied. Don't forget this—a woman may shop for prices on certain established articles—we will say of wearing apparel, or of green market goods that she knows are all right—but when it comes to putting *cheap* things into the stomachs of her family, her shopping stops. She doesn't care to take any chances with her children's health; and the very fact that she doesn't know what's in the stuff makes her all the more insecure."

"Then," she was asked, "you do not believe in cut prices?"

"Cut prices have established for themselves a certain place, but I maintain that they are so unnecessary—and they represent in many instances poor merchandising. Why hand back a woman six cents and place in her thought a distrust of you and the article forever after? I'll warrant you that that same woman doesn't go to the cut-rate place for her prescriptions—she wouldn't dare!"

"But what about the case of Horlick's Malted Milk and similar products—won't she shop for them?"

"That is a different case. In the example of Horlick's Malted Milk and many other nationally-advertised articles the matter has been taken out of the retailer's hands—she isn't buying from him at all, so far as her mental processes are concerned—she is buying from the manufacturer. He has already sold her that *confidence* that I have mentioned previously. It *has* to be sold some time, gentlemen—and it is the biggest asset any business can have. It is, incidentally, one of the things the cut-rate man sacrifices for his bulk."

The questions of samples, demonstrations, neighborhood advertising, circularizing, and newspaper advertising were also discussed.

Although Mrs. Burlingame had been asked

to speak twenty minutes, she was kept answering questions until almost the close of the meeting.

The next paper was read by Mr. Leacock, a prominent Detroit pharmacist, describing various advertising methods which he found valuable in his stores.

A discussion followed, in which many interesting points were brought out.

A. A. WHEELER, Secretary.

The December meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Society Building, Friday, December 17. President Scoville being absent, on account of sickness, Ex-president William A. Hall called the meeting to order, thirty-one being present.

On motion of Mr. Rohnert, it was voted that a resolution of regret be passed that Mr. Scoville could not be present.

The first speaker was State Drug Inspector Jones.

In his talk Mr. Jones gave a very interesting description of the work which is taken up by his department. One point noted was the fact that they are not working with the object in mind of convicting all offenders, but rather to show them their shortcomings, so that they may correct them.

On motion of Mr. Webster, it was voted that we commend the work of Drug Inspector Jones and of the State Dairy and Food Department to maintain proper standards of drugs, chemicals, and preparations, appreciating the importance of this work in its relation to the public health of our community, and pledge our coöperation wherever it may assist the department.

The next paper was by Dr. Bunting, of the University of Michigan, on the subject of "Dentifrices."

A. A. WHEELER, Secretary.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Monday, December 13, 1915, at the Medico-Chirurgical College.

President Henry called the meeting to order at 8:30 P.M., and, there being no new or unfinished business, the program of the evening was at once taken up. Professor Henry Kraemer read a paper on "Progress in the Cultivation of Medicinal Plants."

Dr. George E. Pfahler, röntgenologist of the Medico-Chirurgical College, presented "The Röntgen Rays in Diagnosis and Treatment," followed by a demonstration with radium and Röntgen rays in his laboratory at the Medico-Chirurgical Hospital.

The contributors to the evening's program were given a standing vote of thanks, and the meeting adjourned.

J. ED. BREWER, Secretary.

CITY OF WASHINGTON.

The November meeting of the above organization was held Wednesday, November 24, 1915, and the paper of the evening was presented by Mr. M. I. Wilbert, on the Report of the Commission on Proprietary Medicines of the American Pharmaceutical Association.

He pointed out that this commission was organized at the Nashville meeting in 1913; that a preliminary report was presented at the Detroit meeting in 1914, and that a report of much value along rather conservative lines had been presented and agreed upon at the San Francisco meeting in 1915. It contained ten declarations of minimum requirements, all of which are good, but he considered that they do not reach the crux of the situation, as all of them relate to proprietary remedies only from the pharmacist's standpoint. It contains nothing whatever from the broad viewpoint of the public health.

The commercial phase and that of the public health being so diametrically opposed, he pointed out strongly that the report failed to take into consideration the public welfare, and, as a result, the report of the Commission did not go as far as it should have.

He called attention to the fact that on two previous occasions the American Pharmaceutical Association had considered this same question, and that the masterly report of the special committee, consisting of Messrs. Rice, Hoffman, and Prescott, which was adopted by the Association in 1885, should be further considered and the recommendations contained therein should be carried out.

The data presented along the same lines at the meeting of the National Wholesale Druggists' Association in 1915 by Mr. Hover were most interesting, showing, from carefully-compiled statistics, some very remarkable facts: An enormous increase in the number of proprietary remedies in twenty

years; in 1905 the number of remedies listed in the Druggists' Circular price-list was 28,478, while in 1915 it was 38,143. Previous to the "Food and Drugs Act" 53 percent of the wholesale drug business consisted of proprietary remedies; at present it is somewhat less, going to show that this law has had some beneficial effect. The average sales by wholesale druggists of proprietary preparations at the present time are in lots of a quarter dozen, whereas previous to the "Food and Drugs Act" the sales were much larger and frequently from one to five gross. The report of the Commission was considered and endorsed by the Wholesale Association, with the exception of Article VIII.

He likewise called attention to the fact that the Executive Committee of the Proprietary Association had endorsed the report of the Commission.

In considering this report of the Commission, it was interesting to compare the report of the British Government in handling the same question. This report is much at variance with the conclusions arrived at by the Commission and contains much that is not correct.

The Canadian Government requires the filing with the proper officials of the potent ingredients of all proprietary remedies and receiving a license before same can be offered for sale. The New York and Louisiana Boards of Health now require the filing of the potent ingredients of all remedies offered for sale in the respective jurisdiction. Mr. Wilbert characterized such legislation as vicious and open to many serious objections, one of which is the possibility of blackmail. He considered the proper method would be to require a plain statement on the label of all active or possibly harmful constituents, on the ground that the public, when they dose themselves, should know what they are taking or be in a position that they could be readily advised. In this connection a recent enactment in the State of Nebraska is interesting, for the reason that it affords protection to all animals except man. The act is as follows:

"Section 1. *Live Stock—Remedy Defined.*—The term 'live stock remedy' as used in this act shall be held to include all condimental feed, medicated stock foods, medicinal stock foods, stock food tonics, stock powders, proprietary medicines, or any preparation of like nature designed for any animal except man, and administered internally for the stimulating, invigorating, curative, or other powers. *Provided,* That this shall not be held to include proprietary medicines designed primarily for man but used occasionally for live stock or poultry."

Mr. Wilbert closed his paper by offering the following resolutions:

"WHEREAS, All medicines concern the health of those who use them; and

"WHEREAS, The purchaser of a medicine selected by himself has the right to receive information of its constituents and their quantities; and

"WHEREAS, The report and the draft regulating the sale of proprietary medicines, which was accepted by the American Pharmaceutical Association at its meeting held in Pittsburgh, Pa., in September, 1885 (Proc. Am. Pharm. Assoc., 1885, vol. 33, pp. 394–398), embrace a method whereby the above-mentioned objects may be secured; therefore be it

"*Resolved,* That we, the members of the City of Washington Branch of the American Pharmaceutical Association, recommend that the Commission on Proprietary Medicines insist that manufacturers be required to announce on the labels of all package medicines and toilet preparations the kind and the amount of the active or possibly harmful constituents contained therein."

After considerable discussion, that was participated in by Drs. Wiley and Kalusowski, and Messrs. Fuller, Flemer, Richardson, Wilbert, Hilton, and others, the resolutions were unanimously adopted, and the Secretary directed to forward same to the Journal.

S. L. HILTON, Secretary.

The December meeting of the above-named organization was held at the National College of Pharmacy, Wednesday, December 29, 1915, and the subject of the evening was the "Stevens Bill and Price Maintenance," by Mr. J. Leyden White.

Mr. White presented an elegant paper and discussed the Stevens Bill and the endeavors of trade organizations looking to price maintenance during the past twenty years. He pointed out that the first work along these lines was done by the druggist, and that the birth of one of the national drug organizations was directly due to this work.

He showed what organizations had endorsed the bill—and they are many—and further cited that many felt that the enactment of the Stevens Bill, now known as the

Ayres-Stevenson Bill, was the best proposition thus far offered and would to a large extent afford protection to the small merchant.

The paper brought about a spirited discussion, and it was pointed out by several that the weak feature of the bill was that it contained no provision whereby the giving away of any article as a prize with each sale of merchandise was prohibited or could be stopped, and that this feature would likely cause much more demoralization than what we have at present. It was also pointed out that the provisions of the bill applied only to trade-marked goods, whereas, as a matter of fact, there are to-day but few trade-marked goods on the market, the majority being trade-name goods, and that nothing contained in the bill would give any protection whatever, as this class of goods would not come under its protection. Trade-name goods are in no manner protected.

The organization, by vote, endorsed the principle of the bill unanimously, but felt that many changes would have to be made to afford the small merchant any relief.

The following officers were elected for the ensuing year: H. E. Kalusowski, president; H. B. Floyd, first vice-president; W. W. Stockberger, second vice-president; S. L. Hilton, secretary; W. S. Richardson, treasurer.

After extending a rising vote of thanks to Mr. White, the Branch adjourned, to meet the last Wednesday in January.

S. L. Hilton, Secretary.

THE POSTOFFICE DEPARTMENT CONTEMPLATES NO CHANGE IN THE REGULATIONS PROHIBITING THE ADMISSION OF POISONS TO THE MAILS.

The following correspondence explains itself:

December 27, 1915.

Hon. Postmaster-General,
Washington, D. C.

Sir:

I have the honor to inform you that the National Drug Trade Conference, at its annual meeting held in Washington, D. C., December 16, 1915, unanimously adopted the following resolution offered by Mr. Chas. A. West:

"*Resolved*, That the Conference reaffirm the resolution respecting the mailing of medicines containing poisons in medicinal doses passed at the last annual meeting of the Conference."

The resolution in question reads as follows:

"*Resolved*, That the National Drug Trade Conference hereby renews the representations and recommendations it has made in the past respecting the mailing of medicines containing poisons not outwardly or of their own force dangerous, and urges upon the Postmaster-General the necessity of immediately promulgating a regulation in accordance with the letter and spirit of Section 217 of the United States Criminal Code, that will permit of the economical and prompt distribution of some of the most valuable medicinal agents which are now denied the mails, and for the lack of which, in the hands of the medical profession and drug trade, particularly in small places, inaccessible to express offices, human health and even life is often imperilled."

Trusting that the drug trade of the country may soon have some substantial remedy respecting the mailing of medicinal preparations containing poisons in medicinal doses, I remain,

Yours respectfully,
(Signed) Chas. M. Woodruff,
Secretary.

January 7, 1916.

Mr. Charles M. Woodruff, Secretary,
National Drug Trade Conference,
475 East Grand Boulevard, Detroit, Mich.

Sir:

In answer to your letter of December 27, containing copy of resolution adopted by the National Drug Trade Conference at its annual meeting held in Washington, D. C., December 16, 1915, recommending modification of the Postal Laws and Regulations relating to the mailing of poisons, I beg to say that the Department contemplates no change in the Regulations prohibiting the admission of poisons to the mails.

Respectfully,
(Signed) A. A. Fisher,
Acting Second Assistant Postmaster-General.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

CORRECTION OF THE MINUTES OF SAN FRANCISCO MEETING.

Mr. Fred I. Lackenbach writes General Secretary William B. Day that the discussions in the Section of Education and Legislation relating to the report of the Committee on Patents and Trade-marks were participated in by him, and were credited to Mr. G. H. P. Lichthardt; also, in the abstracts prepared for the Scientific Section, the name of Mr. J. W. England was erroneously given for that of Dr. H. Engelhardt. We are glad to make the corrections; they are ascribable to the transcripts of the minutes, these being printed according to the copy furnished the Journal.

A CORRECTION.

In reading the report of the secretary of the Section on Education and Legislation which appears in the November number of this Journal the following correction will please be taken into consideration:

University of Tennessee School of Pharmacy should be classified with those schools which require three years of high-school work as an entrance requirement to the pharmaceutical graduate course and four years of high-school work for the pharmaceutical chemistry course.

R. A. KUEVER, Secretary.

THE PRODUCTION OF NITROGEN.

Great stress is laid upon the necessity of "cheap" water power as an essential for the production of nitrogen from air. While this is true, there is a misconception of why this is necessary, and that water-power, like everything else, has a relative value. The reason why the atmospheric nitrogen process is little used in this country is because other manufacturing industries, utilizing water-power, can afford to pay a higher price for it. For this reason the logical point for obtaining nitrogen from air is where the available water-power is too remote from points where it can be profitably adopted by other industries. In other words, water-power is only commercially important in the recovery of nitrogen when it really offers a "cheaper" means of production.

The coke-oven plants will very likely continue to be the source of our nitrates, and, with the increasing interest in related manufacturing, offers the more economical method and a nearly inexhaustible source of supply. The very fact of being remote, however, presents the commercially important factor of possible high transportation rates, which more than likely would offset the advantages of low production cost.

THE PREVALENCE OF "GRIP."

Not since 1903 has the dreaded grip been so prevalent as during the past month. Dr. William Osler defined the grip as a pandemic disease, appearing at irregular intervals, characterized by extraordinary rapidity of extension and a large number of people attacked.

Usually the affliction has spread from section to section; this year it seems to have appeared in localities between which distances intervened, and newspaper accounts from all sections of the country report a prevalence of this highly contagious disease in its various forms. The most common form is that evidenced by inflammation of the mucous membrane of the nose and throat, and which has developed the large number of bronchitis cases in many of the cities. Another form that is quite general, and possibly has claimed most victims, is that characterized by a high degree of fever and which, from lack of attention, has contributed an alarming number of pneumonia patients. A less prevalent form is that accompanied by gastro-intestinal disturbances.

In quite a number of the larger cities, stores and factories have been seriously handicapped by the prevailing scourge. The

New York Board of Health at once started an educational campaign, and one of the main mediums utilized for conveying this information is the public school system. Pamphlets, book-marks, etc., are given to the children, who carry them to their homes. The literature presents old thoughts with new admonitions and deductions; for examples:

"Cover up each cough or sneeze,
If you don't you'll spread disease."

"Walk a mile in the open air twice a day. It will add ten years to your life; if you don't believe it, try it and see."

"You can't overdose yourself with fresh air, and disease germs can't endure it."

Drug-store windows evidence that we have with us again the Russian product with a French appellation.

ONE HUNDREDTH ANNIVERSARY.

The completion of one hundred years in business is announced by Adam Pfromm and Co., wholesale druggists of Philadelphia. The firm was founded in 1815 by Thomas Wiltberger.

HERMANN HAGER-ABEND.

The New York Deutscher Apotheker Verein devoted its last monthly meeting on January 6 to a celebration of the centenary of Dr. Hermann Hager's birth. The program of addresses included the following: The Life of Hager, by Emil Roller; Hager as a Pharmaceutical Writer, by Otto Raubenheimer; Hager as a Chemist, by Dr. Friedrich Klein; Reminiscences of Hager, by Dr. Gustav Drobegg.

OBITUARY

HENRY M. BILLINGS.
1832–1915.

Henry M. Billings, a member of the American Pharmaceutical Association for forty-six years (joined 1869), died on October 13, 1915.

HENRY MERRY BILLINGS,

the son of Ebenezer and Mary D. Billings, was born in Boston, Mass., July 21, 1832, and educated in the Brimmer School of that city.

He entered the drug business with his brother, Samuel Janes Billings, who was then conducting a drug store at Great Falls, N. H., and completed his pharmaceutical education with Joseph T. Brown, whose store was located at Washington and Bedford Streets, Boston.

In 1858, when twenty-six years of age, he connected himself with John A. Tarrant & Co., at Greenwich and Warren Streets, New York, in which firm his brother, Samuel J. Billings, had become a partner, but only remained a short time before accepting a position with Thomas Daniels in Toledo, Ohio.

In 1862 he re-entered the employ of the Tarrant concern in New York City, which had meanwhile been incorporated (1861) under the name of Tarrant & Co. Mr. Billings was made superintendent of the company in 1863 and elected to its presidency in 1867, continuing to act as president and superintendent until his resignation in 1879. He retained an interest in the company, however, until 1892, when he finally retired from active business.

Mr. Billings, while never in robust health, was an energetic worker along conservative lines. Under his able administration the Tarrant business expanded in all directions; when he assumed its management in 1863 it was a comparatively small retail concern, with a limited sale for the Tarrant specialties, which had been originated by James Tarrant, the founder of the business in 1844; when he resigned from active service in 1879 Tarrant & Co. was recognized as one of the leading jobbing drug houses on the west side of New York City, while the Tarrant specialties, under the system of advertising originated by him, had grown until Tarrant's Seltzer-Aperient, the leading specialty, had become one of the largest selling household remedies in the United States and had been successfully introduced into many foreign countries.

Mr. Billings, while a strict business man, had a kind and genial disposition; he was a just and considerate employer, a good neighbor and citizen, a devoted husband, a faithful friend, and was highly esteemed by all those who came in contact with him in business or family life, in church or social circles.

In 1860 he married Miss Ellen F. Andrews, of Hingham, Mass., who survives him.

Shortly after taking up his residence in New York, he became a member of the Church of the Messiah, and was thereafter closely identified with its charitable and educational work until his decease.

Mr. Billings was a great lover of Nature; the open country, the trees, the birds, the flowers appealed to him. For many years he left his New York residence early in June for South Poland, Maine, which he made his summer home, and here, amid the scenes he loved so well and surrounded by appreciative friends, he died on October 13, 1915. The interment was in the family lot at Hingham, Mass.

T. F. M.

HENRY HEIM.

Henry Heim died at his home in Saginaw, Mich., on December 19, 1915. He was born in Saginaw in 1857, in a log house which stood on the site of the building where he and his brother William conducted a drug store for over twenty years, at the corner of Janes Avenue and Third Street. He was a member of the Board of Education for several terms, and gave valuable service to the public school system, especially kindergarten work. He was twice appointed a member of the Michigan State Board of Pharmacy. He became a member of the American Pharmaceutical Association in 1900. He was a member of the Germania Lodge, F. and A. M., and East Side Arbeiter societies. He is survived by his wife, Hannah Hutzel Heim, two daughters, and two sons.

J. W. E.

ANTON VORISEK.

Anton Vorisek died on December 2, 1915, after a brief illness, from pneumonia. He was born in 1872, in Bohemia. He received his pharmaceutical education in the New York College of Pharmacy, graduating in 1898, with the degree of Ph.G., and winning the bronze medal. In 1902 he received the degree of Phar.D.

Mr. Vorisek served throughout the Spanish-American War as pharmacist in the navy. Later he was made an instructor in pharmacy in the New York College of Pharmacy, and became professor of analytical chemistry in 1907.

Mr. Vorisek was the author of "Vorisek's Analytical Chemistry," and was co-author, with Prof. Virgil Coblentz, of a work on volumetrical analysis.

He became a member of the American Pharmaceutical Association in 1915.

He was married and leaves a wife and two children.

J. W. E.

STEPHEN H. BLACK.

Stephen Henley Black, vice-president of Bauer & Black, of Chicago and New York, died at his home in Chicago on January 4, in his fifty-fourth year.

Mr. Black was born in Clinton, Iowa, in 1861, and since 1875 has been actively connected with the drug trade; first in a retail store in Clinton, afterward in the sales departments of wholesale drug houses in the middle West.

Later Mr. Black became associated with manufacturers of plasters and surgical dress-

ings, and was identified with this industry practically from its beginning in this country.

In 1893 the firm of Bauer & Black was organized in Chicago, Mr. Black becoming secretary and sales manager; and from that time until his last illness he devoted his energies to developing the sales organization of that firm.

THE NATIONAL DRUG TRADE CONFERENCE

The meeting of the National Drug Trade Conference convened in Washington, D. C., December 16, 1915. The following members of the Executive Committee met on the day previous:

J. C. Wallace, New Castle, Pa.; Charles M. Woodruff, Detroit, Mich.; Prof. James H. Beal, Urbana, Ill.; C. Mahlon Kline, Philadelphia, Pa.; Samuel C. Henry, Philadelphia, Pa.; R. C. Stofer, Norwich, N. Y., and Dr. A. R. L. Dohme, Baltimore, Md. The Executive Committee decided to report to the Conference a resolution prepared by Dr. J. H. Beal, Samuel C. Henry, and Charles M. Woodruff, outlining the position of the Conference if the resolutions were adopted with reference to preparations, remedies, and prescriptions; also another resolution that no amendments be now considered by Congress to the Harrison law, and another resolution asking that whisky and brandy be restored to their former place of recognition in the Pharmacopœia.

The following attended the Conference:

Representing the A. Ph. A.: John C. Wallace, New Castle, Pa.; S. L. Hilton, Washington, D. C., and J. H. Beal, Urbana, Ill.

Representing the N. W. D. A.: Charles A. West, Boston, Mass.; C. Mahlon Kline, Philadelphia, Pa.; and George W. Latimer, Columbus, Ohio.

Representing the N. A. R. D.: Samuel C. Henry, Philadelphia, Pa.; James F. Finneran, Boston, Mass., and Frank T. Stone.

Representing the A. A. of Ph. C.: George C. Hall, W. C. Abbott, Chicago, Ill., and R. C. Stofer, Norwich, N. Y.

Representing the N. A. of M. of M. P.: Adolph Rosengarten, Philadelphia, Pa.; Dr. A. R. L. Dohme, Baltimore, Md., and Charles M. Woodruff, Detroit, Mich.

Representing the P. A. of A.: Fred K. Fernald, Elkhardt, Ind.; Philip S. Heuesler, Baltimore, Md., and Harry B. Thompson, Chicago, Ill.

The resolutions of the Executive Committee were adopted and approved of the following statements as expressing the sense of the National Drug Trade Conference respecting T. D. 2213:

"1. That the word 'preparation' as commonly understood and employed in pharmacy is a generic term which includes and covers compositions and mixtures prepared in accordance with the formulas of physicians' prescriptions, as well as those prepared in accordance with the formulas of the United States Pharmacopœia and National Formulary, and that when it is desired to distinguish between the preparation of these two classes the term 'magistral' is applied to those which are prepared in accordance with the terms of physicians' prescriptions.

"2. That the word 'remedies' as commonly employed and understood in pharmacy covers and includes all medicinal mixtures and compositions dispensed in accordance with physicians' prescriptions as fully as those prepared in accordance with the formulas of the U. S. P. and N. F.

"3. That the word 'prescription' as commonly employed and understood in pharmacy applies both to the written document issued by the physician and to the article, composition or mixture dispensed in accordance with the directions of such document.

"4. That the word 'dispensing' as commonly employed and understood in pharmacy covers and includes the operation of weighing, measuring and mixing of ingredients and all of the other manipulations involved in the preparing and delivering of preparations in accordance with the terms of physicians' prescriptions.

"Therefore, it is the sense of the National Drug Trade Conference that compositions and mixtures prepared in accordance with the directions of physicians' prescriptions are 'preparations and remedies' clearly within the meaning of section 6 of the Harrison Act, and exempt from the provisions and requirements specified in the remaining sections of said act."

The Conference also adopted a resolution asking that the first paragraph of T. D. 2244 be abrogated as being burdensome to the drug trade and without any effective use in furthering the purposes of the law.

Secretary C. M. Woodruff presented a resolution expressing the sense of the Conference that if any revision and modification of the taxing arrangement under internal revenue laws, by which it is meant with respect to the emergency revenues, that the Conference protests against the continuation of schedule B in such a revised taxing arrangement.

A committee appointed to confer with the officials of the Internal Revenue Bureau, and consisting of Messrs. J. H. Beal, C. M. Wood-

ruff, and Samuel C. Henry, secured the following order from the department:

"Pending consideration of briefs to be submitted by representatives of the drug trade regarding the first paragraph of Treasury Decision No. 2244, which was suspended until January 1, 1916, requiring the quantity of narcotic drug to the ounce, or, if ordered in tablet form, the total number of tablets and the quantity in grains per tablet, to be indicated on official narcotic order forms, you are directed to withhold reporting any person violating this ruling until further advised by this office."

Chairman A. R. L. Dohme reported for the Committee on Patents and Trade-marks, indorsing the so-called Paige bill, with the following proviso: "That no patent shall be granted on any application filed subsequent to the passage of this act upon any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol and indigo, or for any process for the preparation thereof for a longer period than five years, unless the patentee or his assigns shall agree that after five years from the granting of said patent he or they will grant a license to any responsible applicant to manufacture said product or use said process upon such terms as may be mutually agreed upon; or in the event of failure to agree within thirty days after such applicant shall apply in writing to such patentee or assignee: then upon such reasonable terms as the Federal Trade Commission may determine at or after a hearing appointed by said commission upon due application and due notice in accordance with such rules and regulations as said commission may prescribe."

This was adopted by the Conference.

An amendment to the Stevens bill was discussed. The Conference decided to secure coöperation with the wholesale organizations in the country with a view to obtaining the assent of the department to an extension of the time for the discontinuance of the guarantee legend or such modifications as would protect outstanding labels.

The Conference went on record as reaffirming a resolution adopted at the session of a year ago, requesting the Postmaster-General to revise and liberalize the postal laws and regulations relating to the transmission in the mails of poisons.

The following officers were elected for the ensuing year:

President, John C. Wallace, New Castle, Pa.

First vice-president, Samuel C. Henry, Philadelphia, Pa.

Second vice-president, Wallace C. Abbott, M.D., Chicago, Ill.

Third vice-president, C. M. Kline, Philadelphia, Pa.

Secretary and treasurer, Charles M. Woodruff, Detroit, Mich.

Executive Committee, John C. Wallace, New Castle, Pa.; Charles M. Woodruff, Detroit, Mich.; Prof. James H. Beal, Urbana, Ill.; Geo. W. Latimer, Columbus, Ohio; Samuel C. Henry, Philadelphia, Pa.; R. C. Stofer, Norwich, N. Y.; Dr. A. R. L. Dohme, Baltimore, Md.; James E. Finneran, Boston, Mass.; Fred K. Fernald, Elkhart, Ind.

WAR DEPARTMENT

List of changes of stations covering period ending December 31, 1915, in the cases of Sergeants First Class and Sergeants Hospital Corps.

SERGEANTS FIRST CLASS.

G. Bruno Weber, from Ft. Sheridan, to Ft. Riley.

Thomas P. Davison, from Ft. Dade, to Ft. Sheridan.

Daniel W. Robinson, from Field Hospital Co. No. 6, to the Remount Depot, Ft. Reno.

George E. Vass, from the Remount Depot, Ft. Reno, to Ft. Dade.

Richard F. Hare, from the Transport "Summer," to Ft. Leavenworth.

Hugh R. MacCleery, from Ft. Sam Houston, to Ft. Clark.

Francis W. Wickett, from the Presidio of Monterey, to the Hawaiian Department, on the February transport.

Samuel J. Koon, from Ft. Canby, to the Hawaiian Department, on the February transport.

Milton T. Esterly, from Ft. Winfield Scott, to Ft. Stevens.

Charles C. Young, from Ft. Stevens, to Ft. Sam Houston.

Quentin J. Barker, from the Walter Reed General Hospital, to Ft. Constitution.

Robert R. Linden, from Ft. Constitution, to the Walter Reed General Hospital.

Martin D. Mims, from the Hawaiian De-

partment, to the Presidio of San Francisco.

Wesley E. Crompton, from the 4th Field Artillery Hospital, to Ft. Andrews.

Robert R. Brooks, from Ft. Andrews to the 4th Field Artillery Hospital, Southern Department.

Harry Meade, from the 19th Infantry Hospital, Southern Dept., to Ft. Moultrie.

Legare J. Lamar, from Ft. Moultrie, to the 19th Infantry Hospital, Southern Dept

Paul E. Wineken, from Ambulance Company No. 6, to the Philippines Department on the February, 1916, transport.

Glen D. Gorton, from Ft. Leavenworth, to the Philippines Department on the January, 1916, transport.

Fred S. Owen, from the Walter Reed General Hospital, to the Philippines Department on the February, 1916, transport.

Ethel H. James, from the Philippines Department, to the Walter Reed General Hospital.

Francis Moore, from the Philippines Department, to Ft. Geo. Wright.

Henry C. Senecal, from the Philippines Department, to Vancouver Barracks.

Everett R. Stevens, from the Philippines Department, to Ft. Worden.

Will G. Butler, from the Philippines Department, to Ft. Mott.

William W. Elcook, from the Philippines Department, to Columbus Barracks.

Charles F. Eble, from the Philippines Department, to Ft. Leavenworth.

Louis J. Pollard, from the Philippines Department, to Ft. Sam Houston.

Fred Luhman, from the Philippines Department, to Ft. Casey.

Reginald E. Taylor, from the Philippines Department, to Ft. Terry.

Edgar O. Greeno, from Ft. Casey, to the 13th Cav. Hospital, Southern Department.

Oscar Burkard, from Ft. Terry, to the 26th Infantry Hospital, Southern Department.

Gabriel Cushman, from the Philippines Department, to the U. S., on furlough.

Nelson A. Hoberg, from the Presidio of San Francisco, to the 20th Infantry Hospital, Southern Department.

John Praneuef, from Ft. Revere, to the Philippines Department on the January, 1916, transport.

William S. Howson, from the Frankford Arsenal, to Ft. Revere.

Robert A. Dickson, from Ft. Riley, to Ft. Sam Houston.

SERGEANTS.

Edgar B. Ernst, from Ft. McDowell, to the Philippines Department.

Cecil A. Milam, from the Cantonment Hospital, Galveston, to Ft. Sam Houston.

Erwin Duntley, from the Cantonment Hospital, Galveston, to the 26th Infantry Hospital, Southern Department.

Neil M. Stewart, from the Cantonment Hospital, Galveston, to Ft. Sam Houston.

James L. Wood, from the Cantonment Hospital, Galveston, to the 17th Infantry Hospital, Southern Department.

Henry Ash, from on duty with the Organized Militia of N. Y., to Ft. Adams.

Louis Kopf, from the Cantonment Hospital, Galveston, to duty with the Organized Militia of N. Y.

John S. Eberly, from the Canal Zone, to Ft. Greble.

Foster Sharp, from Camp E. S. Otis, Canal Zone, to Ft. Williams.

James F. Maxwell, from Camp E. S. Otis, Canal Zone, to Ft. McKinley.

Barney A. Raczunas, from Ft. Michie, to Ft. Terry.

George C. Daily, from Ft. Sheridan, to Ft. Sam Houston.

Philip Bedore, from Ambulance Company No. 1, to Ft. Leavenworth.

Clyde VanHoosier, from the Port of Embarkation, Galveston, to Ft. Sam Houston.

Richard Queen, from the Hawaiian Department, to Ft. Sheridan.

Edmund J. Engle, from Ambulance Company No. 1, to the Hawaiian Department.

Frederick C. Rosser, from the Philippines Department, to Ft. McDowell.

John E. Oberg, from the Philippines Department, to the Presidio of San Francisco.

John McKay, from Jefferson Barracks, to the Philippines Department, on the January transport.

Barney A. Raczunas, from Ft. Terry, to Field Hospital Company No. 6.

Howard S. Robertson, from Ft. Terry, to Field Hospital Company No. 6.

William J. Henry, from Ft. Sam Houston, to the Hawaiian Department, on the January transport.

Arthur L. Swanson, from Brownsville, Texas, to the Hawaiian Department, on the January transport.

William A. Kesselring, from the Hawaiian Department, to Plattsburg Barracks.

Arthur B. Crean, from Plattsburg Barracks, to Brownsville, Texas.

Oscar D. Sugg, from Ft. Strong, to Ambulance Company No. 6.

Fred C. Schultz, from Ft. Andrews, to Ambulance Company No. 6.

Albert C. Calish, from the Presidio of San Francisco, to Ft. Casey.

William J. Mulford, from the Hawaiian Department, to the Letterman General Hospital.

Louis Davidson, from the Hawaiian Department, to Ambulance Company No. 1.

Richard Johnson, from Douglas, Ariz., to accompany the 9th Cavalry to the Philippines Department.

Raymond H. Brookins, from the Letterman General Hospital, to the Philippines Department, on the January transport.

Frank Cassidy, from the Philippines Department, to the Presidio of San Francisco.

Richard H. Bledsoe, from the Philippines Department, to the Pacific Branch U. S. Disciplinary Barracks, Alcatraz, Cal.

George W. Combs, from the Pacific Branch, U. S. Disciplinary Barracks, Alcatraz, Cal., to the 17th Infantry Hospital, Southern Department.

Wheeler W. Johnson, from the Philippines Department, to the U. S., on furlough.

Halbert M. Beasley, from the transport "Kilpatrick," to Ambulance Company No. 6.

Robert G. J. McLurkin, from Ft. Huachuca, to the Philippines Department with the 9th Cavalry.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service, period ending December 15, 1915.

Pharmacist Edward Rogers. Granted 14 days' leave of absence en route to Ellis Island, N. Y. November 10, 1915.

Sanitary Chemist H. P. Corson. Directed to proceed to Grove City, Pa., by way of Cincinnati, Ohio, for duty in connection with studies of industrial wastes. November 13, 1915.

Pharmacist J. V. La Grange. Granted 2 days' leave of absence, December 9–10, 1915. December 8, 1915.

Pharmacist F. S. Goodman. Re-detailed for duty at the Tampa Bay Quarantine Station, effective January 10, 1916. December 14, 1915.

PROMOTIONS.

Pharmacist George I. Van Ness promoted to Pharmacist of the First Class, effective September 19, 1915. December 10, 1915.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

A. E. STEVENSON.
From Washington, D. C.
To 1625 Transportation Bldg., Chicago, Ill.

ROBERT S. R. WITTMER.
From Gary, Ind.
To The River Ave. Pharmacy, River Ave., Pittsburgh, Pa.

J. WESTON PRATT.
From 5 Summer St., Quincy, Mass.
To c/o Welsh's Drug Store, Milton, Mass.

C. THURSTON GILBERT, P.D.
From 9th and Asbury Ave., N. J.
To 27 Stevens St., Danbury, Conn.

MATTYS JONGEWARD.
From 154 A St., N. E.
To Bureau of Chemistry, Washington, D. C.

ROBERT L. EVES.
From residence unknown
To 2218 South 12th Ave., Nashville, Tenn.

WM. L. FLAKE.
From Water Valley.
To Canadian, Texas.

ARLIE L. WADDER.
Should be Arlie L. Waddle and is
At 2101 8th Ave., Nashville, Tenn.

E. HALL WEBB.
From residence unknown
To 21st Ave., South and Acklem Sts., Nashville, Tenn.

CLARENCE C. YOUNG.
From residence unknown
To 735 Church St., Nashville Tenn. (former address).

CARL M. DODSON.
From Enid, Oklahoma.
To residence unknown.

GEORGE EISLLE.
From Louisville, Ky.
To Winchester, Ky.

EMIL SCHULZ.
From residence unknown
To Regimental Hospital, 6th Cavalry, Harlingen, Texas.

LOUIS A. JEANCON.
From 1032 E. 97th Ave., Denver, Colo.
To 1025 E. 9th Ave., Denver, Colo.

FRANK S. HERETH.
From 23 Vine St., Brooklyn, N. Y.
To Richmond, Calif.

W. L. MILLER.
From Box 387, Portland, Ore.
To 119 South Anere St., Saginaw, W. S., Mich.

C. P. VALENTINE.
From 1511 Railroad St., Helena, Mont.
To Department Pharmacy, University of Montana, Missoula, Mont.

CHARLES T. A. WITT.
From 195 Exchange St., Rochester, N. Y.
To 1954 W. 4th St., Gravesend, Brooklyn, N. Y.

JOURNAL ANNOUNCEMENTS

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Further information will gladly be furnished by any of the officers of the Association and members.

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